

An Exploration of Educators' Roles for Building Social Resilience to Natural Disasters in
Small Island Developing States

by

Jendayi Edmeade

A Thesis Presented in Partial Fulfillment
of Requirements for the Degree
Master of Science

Approved July 2020 by the
Graduate Supervisory Committee:

Christine Buzinde, Chair
Gyan Nyuapane
Angela Gonzales
David Manuel-Navarrete

ARIZONA STATE UNIVERSITY

August 2020

ABSTRACT

Small island developing states (SIDS) are on the very frontlines of climate change (UNDP, 2017). Increasing attention on the unique social, economic, and environmental vulnerabilities SIDS face has led to the discussion of the overall resilience of this population. Specifically, post-disaster studies of resilience carried out on SIDS have pointed to *social resilience* and *education* as two primary indicators of the overall resilience of these vulnerable communities (Aldrich, 2012; Muttarak & Lutz, 2014); yet social aspects of resilience related to SIDS have been underexplored, in comparison to ecological and economic themes (Berkes & Ross, 2013). Thus, the purpose of this qualitative study was to explore the personal and professional lived-natural disaster experiences of SIDS residents who are *educators* in order to understand their role in building social resilience within their community. In-depth interviews were conducted with educators employed at public and private schools in the United States Virgin Islands. The findings indicate that residents who are educators conceptualized resilience according to the following themes and sub-themes: (1) *Social Process* which involves *Social Recovery* and *Community Alliances* to ‘bounce back’ to an undefined level of normalcy and (2) *Embodied Identity* which was described in terms of *Community Personifications* of resilience as a trait in general citizens and educators. Participants identified internal and external resources as influential in how residents responded to natural disasters, by so doing, significantly contributing to positive post-disaster outcomes; these resources are referred to in the literature as protective factors (Rutter, 1985). The findings also demonstrate that educators had both a personal and professional responsibility to help their community contend with disasters, and this outcome is best

explicated through the concept of protective factors. The research findings are significant because they: (1) contribute to the limited body of literature on social resilience in small island developing states, (2) demonstrate the importance of subjective perspectives in the development of disaster preparedness and management strategies for climate-vulnerable island populations, and (3) indicate a need for future research to use terminology which acknowledges the many ways in which disaster-prone communities have historically demonstrated and/or embodied resilience.

Keywords: Social resilience, Small island developing states, Educators, Protective factors, Natural disasters

TABLE OF CONTENTS

	Page
LIST OF TABLES	v
TABLE OF FIGURES	vi
INTRODUCTION	1
LITERATURE REVIEW	12
Small Island Developing States	12
Resilience	18
Social Resilience	19
Social Capital	25
Education	30
RESEARCH DESIGN	34
Site Selection	34
Methodology and Methods	37
Data Collection	37
Sample	38
Challenges and Limitations	40
Positionality and Reflexivity	43
Data Analysis	45
Trustworthiness	46
Confidentiality	47
Ethical Considerations	48
FINDINGS	50

	Page
Social Process	50
Social Recovery	51
Community Alliances	55
Embodied Identity	59
Community Personifications	59
DISCUSSION	70
CONCLUSION	82
REFERNCES	88
APPENDIX	
A. IRB APPROVAL	99
B. INTERVIEW PROTOCOL	102
C. POST-INTERVIEW DEMOGRAPHIC SURVEY	105
D. INFORMED CONSENT FORM	107
E. RECRUITMENT EMAIL	110

LIST OF TABLES

Table	Page
1 Public and Private Schools Represented in this Study	40

TABLE OF FIGURES

Figure	Page
1 Visual Representation of Emergent Themes	50

CHAPTER ONE

Introduction

Small island developing states (SIDS) are home to a portion of the earth's most diverse, unique, and vital ecosystems; they are the gatekeepers of an incredibly large concentration of natural resources and biodiversity which includes many rare and endemic plant and animal species. As a result, small island developing states are renowned for being "biodiversity hotspots" providing fundamental ecosystem services for the global community (UN-OHRLLS, 2017). Small island developing states possess a variety of unique, inherent qualities which unfortunately render them socially, environmentally, and economically vulnerable to an assortment of stressors; the most commonly recognized of these qualities are their small size, remoteness, narrow resource base, and proneness to natural hazards/disasters. Located exclusively within the Caribbean, Mediterranean, and South China Sea as well as within the Pacific, Atlantic, and Indian Ocean, small island developing states hold less than 1% of earth's population and contribute the least to the production of the global greenhouse gas emissions that are fueling the climate crisis (UNDP, 2017).

Despite their limited role in comparison to other regions, SIDS experience both a disproportionate amount of climate-related impacts and the most devastating effects (UNDP, 2017). Adding to the alarm is the fact that the present and future effects of climate change are becoming more visible for SIDS and are occurring at a pace that requires a level of resources, planning, and rapid development, which these island nations/territories are not currently equipped to meet, on their own (Below & Wallemacq, 2018). As a result, SIDS are considered to be the most climate-vulnerable population on

earth; hence why greater attention and action need to be shifted onto small island developing states. Climate vulnerability is determined through the examination of an entity's exposure to risks, sensitivity to stressors, and their adaptive capacity (Turner et al., 2003).

Adaptive capacity refers to the ability of communities to utilize their resources to adjust or respond to hazards (Smit & Wandel, 2006), all of which impact the overall ability of a community to adapt, cope, and/or transform after experiencing a traumatic event or stressor – a concept commonly referred to as (social) resilience (Smit & Wandel, 2006). In this context, the underlying assumption is that as the adaptive capacity of an individual, community, or system expands, their resilience increases, and hence, their overall vulnerability should decrease. Consequently, in order to address climate vulnerability, it becomes necessary to consider the adaptive capacity of small island developing states and, most importantly, their ability to build and maintain resilience. The relationship between vulnerability and resilience is currently well recognized and its acceptance is especially evident in the language adopted by a wide range of climate and disaster-based agencies/initiatives. For example, according to Aldrich and Meyer (2015):

...the U.S. Federal Emergency Management Agency's National Disaster Recovery Framework (FEMA, 2010), the Whole Community Approach to Emergency Management (FEMA, 2011), the United Nations Making Cities Resilient Campaign (UNISDR, 2012), the Hyogo Framework for Action (UNISDR, 2005), and the National Health Security Strategy (NHSS, 2009) all incorporate resilience in their frameworks. (p. 255)

Organizations like the United Nations (UN) have become major proponents for ‘building resilience’ as a means to address vulnerability, especially within small island developing states. Through the Sustainable Development Goals (SDG) – a global initiative created to promote global peace, prosperity, and environmental health – the United Nations has called for nations to take action against climate change by working to “strengthen resilience and adaptive capacity to climate-related hazards and natural disasters” (“Climate Change,” n.d.) – paying special, additional attention to small island developing states.

The existing literature on climate change and disaster-related research also point to addressing vulnerability through these means, particularly within small island developing states (Bousquet et al., 2016; Franklin & Downing, 2004; Masterson et al., 2014; Southwick et al., 2014). The United Nations’ endorsement of resilience for this purpose is thus evidenced by the abundance of disaster research literature which continues to demonstrate the significant functions adaptive capacity and resilience plays in limiting the overall impacts of climate-related events on vulnerable populations (Cutter, 2016). Historically, disaster management, mitigation, and planning approaches have fixated on assessing and managing *ecological* and *economic* resilience, as well as (sustainably) developing physical infrastructure in climate-vulnerable communities. However, post-disaster studies of resilience have provided evidence of the efficacy of *social* resilience in limiting the impact of climate-related hazards (Cutter, 2016) and thus, have prompted a shift in the dominant paradigm towards the current recognition that “resilient infrastructure must be complemented by resilient communities and resilient systems of governance” (Kerr, 2018, p. 267). In other words, while it is necessary to

ensure the capacities of the infrastructure to withstand natural disasters, the infrastructure cannot maintain or develop itself.

Furthermore, this recognition has prompted researchers, practitioners, and policymakers to call for a more holistic approach to disaster planning in addition to greater exploration of the social aspects of resilience and factors that contribute to social resilience such as social capital (Aldrich, 2012). Evidence suggests that social resilience drives post-disaster recovery in climate-vulnerable communities as it is often the primary form of resilience to manifest immediately after a disaster has impacted a community (Maguire & Hagan, 2007). For example, post-event, it is often neighbors who provide the first contact/assistance to residents and who initiate the flow of information and the organization of aid from within the community. This is especially true for small island developing states as their remoteness and the destruction of transportation facilities may impede the immediate import of outside aid into the affected communities.

Notably, during the pre-disaster stage, social resilience has been shown to contribute significantly to the overall reduction of disaster impacts in SIDS (MacGillivray, 2018; McAdoo et al., 2019). A post-tsunami study of the resilience and adaptive capacities in the island of Simbo, conducted by Lauer, Albert, Aswani, Halpern, Camanella, & La Rose (2013), uncovered that the low number of casualties (despite the complete destruction of villages in the impact zone) were primarily due to past experiences and accumulated knowledge alerting some residents to the impending tsunami which ultimately resulted in the spreading of this information and the mass migration of most village residents to higher ground.

What the two previously mentioned examples of social resilience manifesting as crucial disaster preparation, response, and recovery tools have in common is that in both instances, *social capital* provided residents the opportunity to engage in social resilience. In a general sense, social capital “refers to the relative strength and density of ties between individuals, as well as associated network characteristics such as trust, reciprocity, and the depth of shared norms” which ultimately may enable the “[flow] of knowledge, information and other kinds of resources” (MacGillivray, 2018, p. 117) within and across these networks.

However, as Aldrich and Meyer (2015) point out, “resilience research and disaster management practices have yet to fully embrace social capital as a critical component...despite the evidence about its efficacy” (p.256). Thus far, the literature within disaster studies is still principally focused on locating the boundaries of social capital for social resilience through rigid top-down approaches that narrowly define, measure, and determine its applications (Healy & Cote, 2001; Portes, 1998, 2000). Certainly, the aforementioned approaches are necessary, but given the manner in which climate-related disasters are complexly and varyingly impacting vulnerable populations *and* the fact that there is a general consensus of the importance of building social capital in these populations, it is clear that more holistic approaches to building social capital should be a priority because of its contributions to social resilience. Further, by virtue of the concept, the exploration and development of social capital provides a potentially clearer route to bottom-up research approaches that *give voice* to those directly impacted – a component of research that has historically been missing (Agrawal, 1995; Jones & d’Errico, 2019; Portes & Landolt, 2000).

Despite the hesitancy to embrace it, social capital is regarded as a strong indicator of social resilience (Aldrich, 2012; Aldrich & Meyer, 2015; Maguire & Hagan, 2007; Putnam, 2000). This is mainly because social relationships and networks can have a significant impact on such things as risk perceptions and disaster planning – both of which contribute to an individual’s or community’s overall adaptive capacity. For example, risk perceptions are understood to greatly influence how communities tackle disaster preparation, mitigation, and recovery.

Alongside reinforcing the need to build resilience and enhance the adaptive capacities of vulnerable populations to climate-related hazards, the UN Sustainable Development Goals also call for nations to focus on “improv[ing] education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning” (“Climate Change,” n.d.). Although distinct but yet an intricately related topic, education has also been determined to be a strong indicator of (social) resilience for the same reason as social capital – it directly influences such things as risk perceptions and provides the vulnerable with the skills and knowledge necessary to prepare for disasters (e.g. potential to enhance adaptive capacity) (Muttarak & Lutz, 2014).

Interestingly, within disaster and sustainability research, education and the generation of knowledge is traditionally linked to human capital (e.g. formal higher education, on-the-job training) and discussed in relation to its economic return on investment (Callaghan & Colton, 2008; Nicoll, 2014; Pisello, Rosso, Castaldo, Piselli, Fabiani, Cotana, 2017). Notably, there are very important and generally overlooked *educational* aspects embedded within social capital, which have implications for other

forms of capital (e.g. human, cultural, economic) and social resilience. Additionally, its incorporation in the literature tends to address western or modern forms of formal education and the need to indoctrinate vulnerable populations of the global south with western values and knowledges of sustainability. Poignantly, Indigenous or local forms of knowledge and their educational pathways (especially those derived from lived experiences) have yet to be fully embraced within hazards education and disaster studies, nor have they been thoroughly explored for their role in enhancing social resilience.

For small island developing states, within the context of disasters (natural or otherwise), discourse related to education has primarily been focused on access to education, funding, curriculum development and effectiveness, and physical infrastructure (Ronan & Johnston, 2003; Sinclair, 2001). Beyond the presence and functioning of educational infrastructure/programs, a few hazards education studies have explored the social implications that access to education can have on youth, their families, and general community well-being. As Sinclair (2001) elucidates, access to *quality* education and educational infrastructure can:

...provide a sense of normalcy; restore hope through access to the ladder of education; support psychological healing from traumatic experiences through structured social activities in a 'safe space'; convey life skills and values for health and prevention of HIV/AIDS, gender equality and prevention of gender-based violence, conflict resolution, peace-building, responsible citizenship and environmental awareness; protect the investment that children, families and nation have made in children's education; provide protection for marginalised groups – minorities, girls, children with disability, out-of-school adolescents. (p. 52)

The evidence reinforcing the impact that education, specifically hazards education, has on youth development and ultimately social resilience is strong. Such topics as youths' hazards perceptions, preparedness, coping ability (*etc.*) have all been explored to some extent (Finnis, Johnston, Ronan, White, 2010; Ronan & Johnston, 2003; Wachtendorf, Brown, Nickle, 2008). In this regard, disaster literature connected to education in small island developing states has illustrated the linkages between educational infrastructure and youths/community in terms of the need for access and hazards-based curricula.

Notably lacking, however, is focus on the education faculty and staff upon which the educational infrastructure depends. This lack of education-based disaster research related to educational staff is alarming for a variety of reasons, but especially because (1) educators spend a significant amount of time with the youth of their community, forming quasi-social and professional bonds with them, (2) educators are the gatekeepers of knowledge flowing through formal educational pathways (e.g. schools) and, as community members, accumulate knowledge through informal educational pathways (e.g. lived experiences), and (3) educators directly control the type and quality of education being taught within formal educational institutions.

Although distinct yet an intricately related topic, education has also been determined to be a strong indicator of (social) resilience for the same reason as social capital – it directly influences such things as risk perceptions and provides the vulnerable with the skills and knowledge necessary to prepare for disasters (e.g. potential to enhance adaptive capacity) (Muttarak & Lutz, 2014). Furthermore, as was previously stated, there are aspects of education that are relevant in the discussion and development of social

capital – the sharing of knowledge from different (in)formal educational pathways via social networks.

Hence why, given the discussion up to this point, small island developing states are the ideal population within which to undertake a study of the role of education in contributing to resilience. There is no doubt that positive forms of resilience already exist and are, to some extent, maintained within these populations. For instance, Indigenous knowledge is a major catalyst for social resilience (Barnhardt, 2005; Mazzocchi, 2006; Mercer, Dominey-Howes, Kelman, Lloyd, 2007). The historical disaster-proneness of the islands occupying SIDS regions means that many of the natural hazards they face are not new (Schwartz, 2016), but rather more devastating. As was illustrated in the previously shared example of Simbo, residents of SIDS have learned to survive and have derived useful knowledge, skills, and resources from their lived experiences with these natural events. Through social capital (i.e. kinship relationships and social networks) which exists in a variety of settings (such as schools) this information is shared, (re)affirmed, and passed down. The knowledge created outside of formal institutions can be adapted to fit within formal curriculum, hence why educators – who identify as part of the community which they are employed within – are powerful agents for social resilience.

Finally, given that social capital is considered to be a good indicator of social resilience and that it facilitates the flow of knowledge, skills, and resources that (in part) are a direct result of informal, potentially unintentional experience-based education of individuals and groups, there is a need to better understand how these *socially constructed knowledge pathways* operate and are integrated within formal educational institutions. Furthermore, it is vital to explore how they are valued by the actors, how

they impact other forms of capital within the community, and most importantly, how they influence the risk perceptions of individuals who comprise a collective network.

Although small island developing states have been under-researched (Dobrovolny, 2014), global awareness of this grouping of nations has been on the rise for some time. In addition to the urgency of climate change prompting discussions on the global stage about vulnerability and sustainability, small island developing states' demonstration of "global leadership across the areas of climate change, disaster risk reduction, and sustainable development" (Kerr, 2018, p. 267) has also significantly helped shift attention onto the climate issues they face.

On a micro level, there needs to be a greater volume of research and disaster management approaches directed towards SIDS. Beyond this, the study of disasters, resilience, and adaptive capacity across small island developing states should also consider the rich social resources, networks, and processes that exist within these nations which have allowed residents to persist for so long in harsh geographic and environmental conditions. Thus, building on extant research and accounting for the urgency of the aforementioned matters, the purpose of this qualitative study is to explore the personal and professional lived-natural disaster experiences of SIDS residents who are educators in order to understand their role in building social resilience within their community. This study purpose is accomplished through the research questions:

1. How do residents of Small Island Developing States who are educators (e.g. administrators, teachers, counselors) define and/or conceptualize 'resilience'?
2. What do residents who are educators identify as elements that influence resilience within their state/territory?

3. What role do educators and education play in building disaster resilience within the state/territory?

This study centers on subjective perspectives related to the development of disaster preparedness and management strategies for climate-vulnerable island populations. This is a significant undertaking because it highlights a need for future research to use terminology which acknowledges the many ways in which disaster-prone communities, like SIDS, have historically demonstrated resilience and/or embodied resilience. Thus, this study provided “a novel approach for using environmental events as revealers of social conditions that are less visible but nonetheless present in everyday life” (Klinenberg, 1999, p. 242).

CHAPTER TWO

Literature Review

The following review synthesizes the literature on the themes central to this proposed study: small island developing states, resilience, social capital, and education. The review pays special attention to how these themes have been studied within climate and disaster management related fields of study. Each section provides a comprehensive evaluation of the existing research.

Small Island Developing States

During the 1992 Rio de Janeiro Earth Summit, the United Nations officially recognized small island developing states (SIDS) as a distinct group of nations with unique vulnerabilities requiring special attention and assistance from the international community. Evidence suggested that the traits small island developing states possess expose them to greater social, economic, and environmental challenges beyond the scope of development and climate change (UN General Assembly, 2015; United Nations, 1992). As a result, small island developing states were coined the most vulnerable of the globally designated vulnerable populations.

Small island developing states occupy three distinct regions: (1) the Caribbean, (2) the Pacific Ocean, and (3) the Atlantic, Indian Ocean, and the Mediterranean and South China Sea (AIMS). Small island developing states do not represent a homogenous grouping due to differences in their demographic characteristics (e.g. size, politics, climate). However, as a result of their geographic location and ecology, SIDS do share some inherent characteristics which make it possible for the distinct grouping to be identified. These characteristics include, but are not limited to: (a) insularity/remoteness,

(b) small physical size, (c) limited natural resources, (d) ecosystem fragility, (e) extreme dependence on external goods and services, (f) small economies and limited economic power in the global market, and (g) sensitivity and proneness to natural disasters (Pelling & Uitto, 2001; UN-OHRLLS, 2019). The inherent characteristics that SIDS possesses as a result of geography/ecology are what make them socially, economically, and environmentally vulnerable. The majority of nations and territories/commonwealths within these regions possess these inherent traits and thus share the same (or similar) social, economic, and environmental challenges.

There is no definitive list of nations that are included within the small island developing state designation. The UN currently lists a total of 58 states and territories/commonwealths as small island developing states – 38 of which are active members of the UN and belong to the Alliance of Small Island States (AOSIS). Concerning the United Nations' list of SIDS, as the island nations on the list move from 'developing' to 'developed' (which is ultimately the goal) they no longer are considered by the UN to be small island *developing* states. A few of the islands listed as SIDS are also on the Least Developed Countries (LDC) list.

On the academic side of things, researchers often apply their own criteria to define small island developing states and to determine which nations to include within their studies – usually based on demographics (Petzold & Magnan, 2019). For example, for his study on tourism development, McElroy (2006) defined SIDS as islands having a population of less than 1 million and a surface area of 5000 km². Furthermore, although the UN restricts their list of SIDS to exclusively include islands, researchers and other organizations have at times included certain coastal nations of the same geographical

regions alongside discussions/studies of SIDS (ex: small island and coastal developing states). This is because coastal states share many of the same characteristics and experience a similar degree of exposure to natural disasters (United Nations, 1992) as their island counterparts.

Much of the support that small island developing states have increasingly been receiving from the international and academic community has really only come within the past three decades. Preceding the adoption of Agenda 21 which was the comprehensive sustainable development plan of action that marked the United Nations' first official recognition of SIDS, the only prior notable inclusion of SIDS by the UN came during the 1972 UN Conference on Trade and Development (UNCTAD). This conference began discussions of how insularity and remoteness give island nations an unfair disadvantage when it comes to economic development and trade. This later prompted UNCTAD to hold another conference in 1988 for which the sole agenda was to discuss insularity and remoteness for small island states (Cullen & Hassall, 2017).

Existing literature on small island developing states is very limited. The subject is still very young, and research of SIDS has only begun to gradually mount within the last few decades. Prior to 1970, the literature on small island developing states as a distinct grouping was relatively non-existent. There were a limited number of studies generally conducted on islands – the vast majority of which came from biology and earth sciences research disciplines (e.g. island biogeography and ecology) (Simberloff, 1974; Simberloff & Abele, 1976; Stearns & Macdonald, 1946). Between 1970 and 1990, a greater volume of research studies on islands, in general, was being carried out, though now, more research concentrated on island economics and industries (especially tourism) and their

development. Also during this time, researchers began to consider specific types of island groupings in their studies (e.g. small island states, island micro-states, and developing islands) (Dommen, 1980).

Although a direct correlation may be hard to argue, it is relevant to note that the heightened attention on islands in academic and organizational realms seems to have really become widespread *after* the 1972 and 1988 UNCTAD meetings. Two other events that may have directly influenced the rise of SIDS-related research were (1) the impassioned speech about climate change and its impacts on SIDS given by the President of the Maldives to the UN General Assembly in 1987 and (2) the convening of the Small States Conference on Sea-Level-Rise in 1989 by the Maldivian government (Lewis, 1990; Wong, 2011). All of these events at least momentarily demanded the attention of the international community, thus heightening awareness of SIDS.

The UN conferences, the actions by the Maldives, and the subsequent 1992 Earth Summit stirred up yet another round of SIDS-focused research and prompted another shift in the subject matter of these SIDS studies. Unlike the UN Conference on Trade and Development which emphasized economy/trade, Agenda 21 highlighted *climate change*, *sustainable development*, and *vulnerability* (of social, economic, and environmental systems). Within those three themes were the discussion of the economy, education, development, health, and other areas of life where vulnerabilities manifest.

The Earth Summit and the resulting plans of action/frameworks/conferences that followed the post-1990 discussions of SIDS and extend into current times, still predominantly emanate from biogeography, ecology, economics, (sustainable) development, and tourism disciplines. However, a heightened awareness of climate

change has led disaster and resilience fields of study to take notice of SIDS. As information pertaining to climate change, sustainable development, and vulnerability continues to progress, the scope of studies on small island developing states continues to grow and expand to other fields and topics.

A review of the SIDS literature also shows a trend in the predominant type of research *approaches* that have been utilized throughout the years. Overwhelmingly, studies have been carried out using top-down and western-centric quantitative research designs and methodologies. This may be explained as being a result of the intense focus on *systems and organizational management* versus the limited attention on the *community level stakeholder and actors* within the systems. The inclusion of and collaboration with the local/indigenous populations occupying small islands developing states is rather minimal.

These gaps are noticeable and have been pointed out by various researchers, practitioners, planners, and communities. Within the past few years, there have been calls for two specific paradigm shifts. The first is the call for greater exploration of the social aspects of SIDS existence (e.g. social systems, structures, capitals). Until recently, the social aspects of SIDS existence have been generally ignored especially within studies of climate change, disasters, and sustainable development. This is despite the mounting evidence about the efficacy of social systems/actions for reducing climate vulnerability and supporting development efforts (Aldrich, 2012). The second call has been for the inclusion of local/traditional communities and their knowledge to help define and evaluate systems and to generate solutions that are socio-culturally sensitive (Mercer et al., 2007). In other words, community-based approaches are being encouraged.

McMillen et. al (2014) have examined the literature to identify how indigenous and local knowledge systems have been used to promote resilience building in the Pacific Islands. Mercer, Dominey-Howes, Kelman, & Lloyd (2007) argue for the creation of a framework that works to combine indigenous and western knowledge for disaster risk reduction in SIDS. The significance of community-based approaches is not exclusive to SIDS research but has also been part of the discussion across academic institutions.

It is clear that there is ample space for other forms of research that will either add local perspectives to these discussions and/or begin to apply action through techniques such as participatory action research (PAR) and community-based research methods. Being as though small island developing states are considered to be on the frontlines of climate change and most vulnerable, the limited amount of studies surrounding the grouping is discouraging. However, the youthfulness of the field could indicate that there is potential to capitalize on the burgeoning interest in SIDS that is extending into more fields of study.

The past decade has seen an increase in literature on the topic of resilience/resiliency across many disciplines. Resilience has especially made its way into natural hazards/disasters and sustainable development-related studies because, as Bergstrand, Mayer, Brumback, and Zhang (2015, p. 392) perfectly describe, “vulnerability speaks to the conditions that make communities susceptible to harm, [while] resiliency refers to coping with and recovering from a hazard that has already occurred”.

Resilience

Resilience is a concept that has been applied within a wide variety of research disciplines such as ecology, psychology, sociology, and geography, in a variety of ways. As a result of its wide applicability, resilience has become a well-defined concept that continues to rapidly evolve as more disciplines consider its value. Although there is not necessarily a unified definition of resilience across these fields of study (or even within the same fields of study), there is a basic conceptualization of the term which bridges the academic divide. Resilience is broadly defined as an individual's, community's or system's ability to adapt, cope and/or 'bounce back' after experiencing a traumatic event or stressor (Bhamra et al., 2011; Martin-Breen & Anderies, 2011; Meadows et al., 2015).

The concept's origins are somewhat disputed, but the earliest mentions of resilience are normally attributed to the field of ecology. Holling (1973) introduced the concepts of *ecological* and *engineering* resilience into the discourse framing them as the ability of a system to recover to equilibrium within a reasonable time frame. From *engineering resilience* came *social-ecological resilience* (Gunderson, 2001) which looks at a system as dynamic and is concerned with the adaptive capacities of said system (Smit & Wandel, 2006). Social-ecological resilience describes human systems as being embedded within ecological systems – a concept which with time grabbed the attention of social scientists. In recent times, a third stream has emerged, from the social sciences, that argues that human systems are not simply embedded within ecological systems, but rather have an immense influence on and over ecological systems because of human free-will. It is specifically dedicated to exploring the social aspects of resilience that allow

social systems the ability to absorb, adapt, and transform as a response to stressors independent of ecological systems (Adger, 2000). This stream is called ‘social resilience’.

The investigation of resilience across research disciplines and within the different sub-genres of the general concept of resilience has resulted in there being a concentration of studies that (1) explore systems’ structures and the characteristics of systems, (2) identify indicators and evaluate the capacities of systems, (3) build frameworks for measuring adaptive capacity/resilience/vulnerability and (4) synthesize the available literature.

Although the natural sciences originally dominated the production of literature on resilience for a long time, the invitation for cross-disciplinary collaboration – specifically with social scientists – and the relevancy of the concept for other disciplines has helped to drastically broaden the boundaries within which resilience has historically been talked about. Because this concept is very context-dependent, the knowledge born out of these now multi-disciplinary lines of inquiry varies greatly but nevertheless highlights the interconnectedness and overlapping qualities of both ecological and social/human systems.

To conduct a thorough review of the literature on resilience would require much more time and space than is necessary for this study. Most relevant to this proposal is the third stream, social resilience. Therefore, the remainder of this section will discuss social resilience in greater detail, paying special attention to its applications in disaster research and the topic of small island developing states.

Social Resilience

The general concept of resilience is fairly new (Maclean et al., 2014) and social resilience is the newest of the three branches previously discussed. The concept emerged from within the social sciences in part as a protest to the ecology-based notion of “human systems embeddedness within ecological systems’ (Westley et al., 2002). Social scientists argue that while humans do have a dependence on ecosystems and natural resources (Adger, 2000), they also have the ability to fundamentally disrupt, transform or majorly impact the development of ecological systems (and vice versa) (Gunderson, 2000). Thus, the relationship between the two systems would be better described as overlapping or interdependent, rather than one being embedded within the other.

Furthermore, from the perspective of social sciences, it could also be argued that in order to fully appreciate the true nature of social-ecological systems, there must first be a fundamental understanding of both ecological and social/human systems as separate entities. It is from the separate investigation of ecological and social systems that the concept of social resilience emerges. Social resilience refers to the ability of an individual, community, or organization to persist, adapt, and transform in the face of internal or external social, economic, and environmental stressors.

The indicators of social resilience may differ depending on the context. Where natural hazards are concerned, the indicators have been determined to include demographic characteristics of the community (e.g. race, gender, occupation), education and the exchange of knowledge from various sources, and social capital (social groups and networks; social cohesion; shared values and norms).

Unlike in ecological and social-ecological resilience discourse, human actors are considered central to the discussion of resilience. Social resilience studies include human/social *systems* (e.g. structures, networks, relationships) and the system's *actors* (e.g. meaning and content of social relationships) across different levels present in communities (e.g. individual, group, organizational) (Bergstrand et al., 2015). The other two branches of resilience have primarily applied resilience at either the individual level or on larger scales (regional, national, global) (Ross & Berkes, 2014).

Commonly found within the published works is the term 'community resilience' which is sometimes used interchangeably with the term 'social resilience'. Although when not used interchangeably, community resilience is generally described as a sub-category or adjacent concept of social resilience. For this type of social resilience, the direct emphasis is of course on communities that are made up of individual actors belonging to social groups, (kinship) networks, and organizations. Community resilience refers to how communities are able to cope, recover, adapt, and transform by utilizing their own resources to mobilize when confronted with a disaster. The same basic principles between social and community resilience apply; the main difference is the clear delineation of the level of society at which the resilience is being examined.

Due to the fact that the general resilience concept is rooted within ecology and evolved (in part) from the exploration of ecological and social-ecological resilience respectively, it is fair to say that social resilience builds upon the same defining principles: *persistence* of a system and *adaptability* within the system. The most significant departure that social resilience has taken from the traditional idea of resilience is that it goes beyond persistence and adaptability to include *transformability*, also known

as “the capacity to create a fundamentally new system when ecological, economic, or social...conditions make the existing system untenable” (Walker et al., 2004).

For the social context, transformability is crucial. There are times when certain actions/structures become unsustainable and unable to perform in their expected manner meaning that continued reliance on these structures would result in irreparable damage. The following is an example provided by Walker et al. (2004) that demonstrates how transformability supports resilience:

In [a] rangeland case a new stability landscape could be created by introducing new ways for earning a living, such as ecotourism, based on wildlife and rivers. This is what occurred in southeastern Zimbabwe (Cumming 1999) where, after many decades of cattle ranching, the rangeland ecosystem had changed undesirably for livestock and terms of trade had declined. A severe drought in the early 1980s triggered a transformation from many individual cattle ranches to a few wildlife “conservancies” with all livestock and fences removed and managed collectively for tourism and hunting. (sec. Transformability)

Transformability not only requires individuals, groups, and/or communities to be willing to go through these processes of adjustment that either build on old practices/systems or invent new ones, but they also need to have the awareness to identify when this type of change is necessary and have the resources (e.g. capitals) in place to support shifts of varying magnitude. Transformability is a perfect example of why the social aspects of resilience are important because a community’s ability to successfully mobilize for transformation requires some level of social cohesion, shared values, knowledge, and goals (e.g. social capital).

While there continues to be some debate regarding whether ecological and social-ecological resilience as defined should be classified as a desirable outcome, a process, a set of characteristics, or all the above (etc.), there appears to be greater consensus within the social sciences that resilience represents a *continuous process* of coping, learning, adapting, and transforming – whether proactively or reactively (Bergstrand et al., 2015).

To reiterate, social resilience is still a relatively new concept; therefore, the volume of published literature on the subject remains minimal especially in comparison to the other more prominent forms of resilience. The application of the concept within the social sciences branches of study is widespread. Although disaster research disciplines have produced the most knowledge of social resilience, there are a few other fields of study that the majority of these studies have come from. These are: economics (N. A. Marshall & Marshall, 2007), education (Nicoll, 2014), (community, environmental, and emergency) management (Baldwin & King, 2018; Maguire & Hagan, 2007), psychology (Dent & Cameron, 2003), and (youth and family) social work (Fraser et al., 1999; Ungar, 2011).

A small number of studies in the fields previously mentioned, broadly explore social resilience in different contexts (Adger, 2000; Cinner et al., 2009), but most “ focus on specific stressors, which can be broadly grouped into three categories: *natural hazards and disasters, natural resource management, resource scarcity and environmental variability, and social change and development issues*” (Keck & Sakdapolrak, 2013, p. 8). In terms of approach, researchers generally concerns are to answer the questions “resilience of whom or what?”, “resilience to what?”, and “resilience by what means?” (Cutter, 2016).

If one unifying theme or motivating factor for these studies had to be identified across the different fields, that theme would be ‘vulnerability’. Vulnerability is an inherent quality of social systems that preexists stressors. It is determined based upon an entity’s exposure to risks, sensitivity to stressors, and their adaptive capacity. Recall that adaptive capacity is “defined by the conditions that a system can deal with, accommodate, adapt to, and recover from” (Smit & Wandel, 2006, p. 287).

Generally, resilience is brought up in relation to at-risk or vulnerable populations meaning that generally, it is “resilience of” vulnerable populations. The specific stressor dictates the response to “resilience to what?”, but for disaster research the answer is usually: to natural hazards, disasters, and climate change impacts. Again, context determines the means by which resilience is generally thought to be built, practiced, or attained. However, on a basic level, many point to building resilience by reducing vulnerability through the accumulation of assets and resources (infrastructures, networks) and the enhancement of capacities and capitals.

Researchers, practitioners, and policymakers across disciplines point to resilience building as a way to address vulnerability. Contemporary assessments of vulnerability and resilience are underscored by the knowledge that the presence of vulnerability does not necessarily equal a lack of resilience. In other words, “communities and the social groups contained within them can be highly vulnerable, but that does not mean they lack resilience” (Cutter, 2016, p. 111). Thus, the goal is not to actually reduce those inherent forms of vulnerability, but rather to enhance the capacities of vulnerable populations to respond to stressors in a manner that limits the disruption of life.

Small island developing states by virtue of their existence in regions prone to natural hazards will continue to be highly exposed to climate-related stressors (i.e. highly vulnerable to natural hazards/disasters), however, through the development of capacities (e.g. human, economic, social capital), they can limit the social impact that these stressors have on their livelihoods and thus be resilient in spite of their vulnerabilities. This conceptual relationship between vulnerability and social resilience in relation to disasters is partly why academics, practitioners, and policymakers choose to recommend building resilience as a primary means to address vulnerability especially in relation to a disaster. In fact, as Cutter (2016) describes,

Much of the contemporary work on social resilience derives from research on vulnerability. Originally formulated in a disasters context, the vulnerability paradigm was a reaction to the prevailing risk/hazards-focused work of the 1970s that virtually ignored human agency, and working in tandem with scholars interested in development studies, began to assess the differential susceptibility of groups to hazards as a function of economic status, gender, race and ethnicity (p. 111)

Contemporary literature on social resilience historically spent more time *assessing* and *measuring* the role or impact of social resilience on economic, environmental, and social infrastructure within vulnerable communities. However, as more studies have been carried out within communities recovering from natural disasters, attention has shifted towards gathering knowledge of the processes, defining qualities, and available resources that contribute to the overall resilience of vulnerable communities (Cutter, 2016). By interviewing community members (post-disaster) about their pre, mid, and post-disaster

experiences, researchers have found that many communities engage in some form and some level of social resilience – whether intentional or not. These instances of social resilience are most commonly linked to the existence of social groups, networks, organizations that facilitate the flow of knowledge and skills, and are based on collective trust, norms, and values – this is also known as social capital.

Social Capital

Thus far, this review of literature has demonstrated a rather widespread shift in focus towards the valuation of social systems which has been occurring over the past few decades across academic disciplines and within organizations. This shift has resulted in the development of the social resilience concept and further consideration of the role of social actors, capacities, and structures especially within a wide variety of social science disciplines (e.g. economics, sociology, political science). Although there are many dimensions of social resilience to be explored, one specific aspect of the concept has captured the attention of researchers, practitioners, and policymakers: social capital.

Much like resilience, social capital has been defined in a variety of ways that are still conceptually very similar. Those that have provided in-depth reviews of the many definitions of social capital, generally break them down according to whether they address external, internal, or a mix of both forms of social capital – these are also known as bridging, bonding, and linking capital respectively (Adler & Kwon, 2002).

Bridging capital (external) is concerned with the relationships that actors maintain with other actors; the networks that they maintain and the resources that actors have access to and benefit from because of these networks (Bourdieu & Wacquant, 1992; Portes, 1998). Bonding capital (internal) relates to the relationships between or among

actors within the same networks and the structures that these networks are built upon (e.g. trust, norms, obligations) (Coleman, 1988; Putnam, 2000). Finally, linking capital (both external and internal) concerns both the networks and the assets that move throughout the networks (Loury, 1992; Woolcock, 1998). Moving forward, this review adopts Nahapiet & Ghoshal's (1998) definition of social capital which describes it as:

the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit. Social capital thus comprises both the network and the assets that may be mobilized through that network. (p. 243)

As previously suggested, social capital is embedded within formal and informal relationships and networks (families, workgroups, neighbors, etc.) These relations are built upon and consist of shared norms, obligations, rules, expectations, trust, information channels, etc., which result in collective values and efficacy that allow whole communities to mobilize and work towards a shared goal. For example, “a prescriptive norm within a collectivity that constitutes an especially important form of social capital is the norm that one should forgo self-interest and act in the interests of the collectivity” (Dasgupta & Serageldin, 1999, p. 22).

There are some who complain about the “indiscriminate and metaphoric” (Adler & Kwon, 2002, p. 21) use of the economically derived concept of capital to describe these social assets and networks, while others complain that grouping the various assets and properties that are normally included under the social capital umbrella (e.g. social cohesion, knowledge pathways, social networks) assumes that the contribution of each component are equally (or similarly) valuable. The relative newness of the social capital

discourse and the subsequent creation of multiple competing definitions of the term has made it more difficult to assess and measure social capital in a manner that would be widely accepted. Despite the gripes about the lack of cohesive interpretations of social capital and its broad scope, social capital as a concept remains supported.

Of the various forms of capital, social capital is talked about the most in terms of both its pros and cons, although the positive potentials of social capital dominate the discourse. For example, hate groups or criminal organizations consist of social actors and networks and can, therefore, benefit from social capital. Individuals on the fringes of communities might find their needs or concerns not being met because they lack access to the networks that would enable their needs to be met. So, there are many ways in which social capital can be problematic at the community level, however, the benefits are enough to continue pursuing its development. These issues will need to increasingly become more and more central to the discourse once communities/government agencies begin to implement practices that build social resilience.

Social capital “has informed the study of families, youth behavior problems, schooling and education, public health, community life, democracy and governance, economic development, and general problems of collective action” (Adler & Kwon, 2002, p. 17), but is arguably most relevant to sustainable development and disaster research. Much of the contemporary literature of social capital relates the social resilience phenomenon to natural hazards/disasters. There are countless examples that come from disaster studies of how social capital has been utilized (proactively and reactively) to react to climate-related stressors which help to explain why social capital is considered an excellent indicator of resilience alongside education/community knowledge.

Again, measuring social capital has become recognized as the hardest challenge fields of studies are facing right now relating to the topic (Grootaert, 1998). When seeking to measure such concepts, researchers often first try to identify indicators. The World Bank has put together a rather lengthy list of social capital indicators (related sustainable development) of which the broad categories include horizontal associations (e.g. membership, participation, trust in both community members and government), civil and political society (e.g. demographics of political engagement), social integrations (e.g. social mobility, divorce rates), and legal and governance aspects (e.g., quality of bureaucracy).

There are many different ways that social capital can be measured, however, most looks to evaluating the horizontal associations where values, trust, etc., among and between actors within networks at the community level can be found. This makes sense because the social resilience stemming from the reliance on social capital in disaster situations has consistently been shown to emerge organically; without prompting, direction, or direct interference from non-community sources (Lauer et al., 2013; Mercer et al., 2007, 2009). Small island developing states are the perfect example of this. Past disaster experiences, a shared (oral) history of disasters and stories of survival, social memory, and other similar community-based knowledge are regularly passed down generationally and throughout communities.

This is not to say that social capital on its own can produce the kinds of benefits to communities necessary to limit their climate-related impacts due to their inherent vulnerabilities. Embedded within social capital are other forms of capitals and vice versa– those most commonly discussed are human, physical, and economic capitals. Each

support functions of the other thus making it possible for the capitals to operate at their full potential. For example, human capital which is broadly the education and knowledge individuals possess (and sometimes considered social capital), is thought to promote the educational development of youth. However, as Dasgupta and Serageldin (1999) explain:

...human capital may be irrelevant to outcomes for children if parents are not an important part of their children's lives, if their human capital is employed exclusively at work or elsewhere outside the home. If the human capital possessed by parents is not complemented by social capital embodied in family relations, it is irrelevant to the child's educational growth that the parent has a great deal, or a small amount, of human capital. (p. 28)

In times of crisis, lived experiences and knowledge gained through various forms of educational pathways help to inform pre and post-disaster responses (Aldrich, 2012; Mercer et al., 2009). For small island developing states, social capital is often the first resource that individuals can rely on in the immediate aftermath of a disaster; hence why it is considered not only a good indicator of resilience but also a crucial resource for post-disaster community development.

Education

An individual's level of education is considered to be an excellent indicator of their adaptive capacity because education has been correlated to socioeconomic status, enhanced risk perceptions, access to health services and weather information, and additional factors which empower individuals to actively plan for and participate in disaster planning and mitigation activities (Muttarak & Lutz, 2014). As previously stated, education is most commonly described as a form of human capital that contributes to

economic capital within a community. However, education is increasingly being included in the general discourse of social resilience because access to education is also credited with widening peoples' social networks and deepening their relationships with other social actors within and across groups (Department for Business Innovations & Skills, 2013). Within disaster contexts, social networks – whether created as a result of engaging in formal education or organically created in everyday social interactions – have been proven to be essential at every stage of a disaster event (Mileti & Sorensen, 1990). For example, as Muttarak & Lutz (2014) describe:

...individuals who are embedded in large and well-established social networks and friendship groups have higher chance to receive informal warnings and consequently more likely to confirm warnings and engage in response. Furthermore, social capital and social networks increase the propensity to evacuate and facilitate relocation and recovery. (p. 3)

Not only does education enhance social capital by providing additional opportunities for social networks and groups to be formed, but education also allows individuals to share (in)formally acquired knowledge in a variety of settings (e.g. institutional, professional or social) through a variety of mediums (e.g. over the phone, in person, long-distance).

Within small island developing states, the topic of education and natural disasters generally is discussed in relation to public access, infrastructure, and curriculum (effectiveness and development). Where social actors are concerned, the literature and local discourse tend to focus on youth, their families, and the general community. A majority of youth-related studies have aimed to demonstrate how quality hazards education results in improved risk perceptions and disaster preparedness, in addition to

decreased anxiety surrounding disaster events (or better coping mechanisms post-disaster) for youth (Finnis et al., 2010). Community-related studies have identified residents' perceptions of the benefits of education (socially and economically) for their community. Post-disaster issues such as the mass migration of students, families, and teachers out of communities pose significant risks to social capital and, ultimately social resilience in SIDS. When community members move away, they take with them their knowledge, skills, and resources. Their networks break down or at least become strained. The outmigration of community members makes space for the in-migration of new actors with their own set of norms, obligations, and ideas thus, potentially decreasing social cohesion (Berkes & Ross, 2013; Inkpen & Tsang, 2005; Portes & Landolt, 2000). More specifically, the migration of youth out of these communities as a result of an occurrence like a natural disaster also has implications for the future economic development of the community.

Notably, the discourse on education in disaster-prone regions – specifically SIDS – has produced extremely limited studies of administrators and educators. Broader educational literature makes clear the role that educators have in fostering the development of their students and in shaping them to become responsible community members. Educational literature also points to the ways in which social capital, through educational programming produced by educators, has an impact on students. For example, teachers or counselors who provide students with college recommendations become part of student's professional networks and also, by providing them with a recommendation that might ultimately help them get into university, contribute to students' ability to build social capital. By teaching students how to get along with one

another, problem-solve, network (via group projects), etc., educators are imbuing students with the skills to develop and utilize social capital.

Educators are a powerful group to understand because they are the gatekeepers of formal, institutional knowledge and because of their professional relationships with students. Taking it a step forward, educators, in their non-professional roles as community members, also are part of social networks that rely on various educational pathways to acquire knowledge, skills, and resources. As community members, they also would benefit from the community's investment in youth education and also feel the impacts of disasters in their personal and professional settings (e.g. destruction of classrooms). The implications are endless.

Overall, the existing literature makes it clear that greater attention needs to be placed on investigating the role of education in improving social resilience to disasters in small island developing states. More research related to youth and the general community is necessary, but also specific attention needs to be shifted onto educators – both in terms of their professional role in the community and their personal experiences. This is in order to then understand how personal experiences and investment in various community capitals (and the knowledge, skills, and resources that comes along with these investments) shape their approach to education and their relationships to their students/the broader local educational institutions.

CHAPTER THREE

Research Design

Site Selection

The United States Virgin Islands (USVI) served as the research site for this proposed study. The island chain is an unincorporated territory of the United States of America located in the Lesser Antilles of the Caribbean region. The USVI consists of four main islands - Saint Croix (STX), Saint Thomas (STT), Saint John (STJ), and Water Island (WI) - and roughly 50 smaller islets and cays. Of the approximately 104,000 individuals that make up the USVI population, 76% are black/afro-Caribbean and 15.6% are white (US Department of the Interior, 2015). The United States Virgin Islands was an extremely relevant site to carry out this study for a few key reasons. First, the territory's proneness to natural disasters, extreme dependence on external goods and services, fragile natural resources, limited economic power, and other inherent traits contribute to its status as a small island developing state (United Nations, n.d.).

Second, the US Virgin Islands exist within a geographic region that is well known for its centuries-long history with natural hazards sometimes turned disasters, most commonly hurricanes (also referred to as cyclones in other regions) (Pielke et al., 2003). There is historical evidence to suggest the indigenous tribes who once occupied the pre-colonial Caribbean were knowledgeable of the threat of hurricanes; they incorporated these events into their culture and practices (Schwartz, 2016) and they employed various mechanisms and skills to deal with them. Consequently, tropical storms and hurricanes are a readily acknowledged part of life in the Caribbean – as indicated within the findings

– and they have been the reason for the implementation of special planning and preparation at all levels of local community and government.

Third, the US Virgin Islands has been subjected to a number of disaster events resulting from hurricanes within the past few decades. Currently living in the territory are residents who have survived Hurricane Hugo (1989; category 5), Hurricane Marilyn (1995; category 3), Hurricane Irma (2017; category 5), Hurricane Maria (2017; category 5), and Hurricane Dorian (2019; category 5). The 2017 hurricanes were two of the most devastating in Caribbean history and had unprecedented impacts on the islands that were directly in their paths such as the USVI. The occurrence of Hurricane Dorian two years later resulted in additional damage to the still-recovering territory (Coto, 2019). The US Virgin Islands is a territory rich in traditional and experience-based knowledge as a result of their history of natural disaster events and is a locale wherein this knowing is utilized to inform social capital, locally, which is most apparent pre and post-disasters.

Fourth, the educational system in the US Virgin Islands has undergone a variety of significant changes as a direct result of the hurricane-related damage inflicted on its physical and social infrastructure. A handful of school campuses have been condemned or permanently closed (FEMA, 2018a, 2018b) which resulted in the remaining operational schools being forced to temporarily share facilities or fully absorb additional student bodies (and displaced teachers) from the permanently closed schools. The Department of Education implemented “split-schedules” which shortened the school days and staggered when schools let their students out for the day for many reasons that include helping to limit traffic around school zones and limiting students’ and staffs’ time spent in the less than favorable conditions. The unavoidable delayed start of the school

year prompted around 10% of students to leave the territory (U.S. Dept of Education, 2018). The issue of youth leaving the territory was of concern prior to these events and has now become more pronounced in the aftermath (U.S. Dept of Education, 2018). The importance of the new generations staying within the community and contributing to the economic and social health of the territory is a topic that has continued to be discussed in the aftermath of these storms.

Hurricane season begins just a few weeks before the school year starts in the USVI. In the US, school systems have “snow days” built into their calendars whilst in the USVI the equivalent is “storm/hurricane days”. The shock to the educational infrastructure, leading to the mass migration of both students and teachers may have implications for the social resilience of the territory. Residents that leave take with them the knowledge of local systems and, to some extent, limit their ability to interact with individuals who were within their social networks. The migration of the youth population may also have implications for the new generation of social networks and the passing down of local knowledge, skills, and resources stemming from within the community. The social implications for the local community as a direct result of a disaster speaks to yet another important aspect of this study.

As was previously stated, the US Virgin Islands consists of the four main islands of Saint Croix, Saint Thomas, Saint John, and Water Island. However, the bulk of the data collection occurred on Saint Thomas and Saint Croix. This is because Saint John and Water Island have extremely limited to no educational infrastructure, thus requiring the youth population to commute to Saint Thomas to attend school. Water Island has no hospital, no schools, no public transportation, and no major businesses. Saint John has

one public school (k-8th), a few private schools, a small hospital annex, and limited public transportation, etc. Residents of both islands frequently commute via private boat, public ferry, or barge to Saint Thomas to attend school, work, grocery shop, or to travel off-island via sea or airplane. Saint Croix has its own school district and Saint Thomas, Saint John, and Water Island share one school district.

Methodology and Methods

This study was rooted within an interpretive constructionism paradigm which “argues that the core of understanding is learning what people make of the world around them [and] how people interpret what they encounter...” (Rubin & Rubin, 2011, p. 19). It is necessary to understand how human experience shapes their subjective views of the world because not only is it helpful for providing context as to why humans operate the way they do, but it is also valuable for providing a greater, richer context for scientifically gathered knowledge. The study utilized a qualitative research approach to explore how the natural disaster experiences of educational administrators, faculty, and staff in the United States Virgin Islands shape their views of the territory’s social resilience based upon their utilization of social capital and their perspectives of social capital possessed by youth in the territory.

Data Collection

The data collection method chosen for this study was in-depth, semi-structured individual interviews lasting between 30-60 minutes. A total of 18 interviews were conducted via phone and Zoom video chat; participants were encouraged to choose the method which best suited their needs. With consent given prior to the start of the interviews, the sessions were tape-recorded using the recording and transcription app,

Otter. To safeguard against any unforeseen technical issues, the interviews were also recorded on a handheld recording device. See **Appendix D** for the consent form which all participants were asked to sign and return before the interviews were conducted. The files from both recording devices were uploaded to an encrypted device and deleted off the actual recording devices to ensure the data was kept secure. After each interview, the rough transcriptions created by the Otter app were manually cleaned in Microsoft Word. During the interviews, field-notes were taken in order to provide context for the data analysis (Phillippi & Lauderdale, 2018) and to be used as a helpful reference during the data analysis. Finally, participants were compensated with a \$15 gift card to either Amazon, Office Max, or a store of their choosing *after* the interview and the post-interview survey had been completed. Three individuals chose to decline this compensation, which is clearly stated in both the transcripts and in the post-interview survey responses. See **Appendix B** for the Interview Protocol which includes the questions participants were asked during the course of the interviews.

Sample

The sample population for this study included administrators and faculty and staff members that were actively employed at the ~25 public and private middle, junior high, and high schools located in Saint Thomas/Saint John and Saint Croix school districts. The sample was further narrowed to only include those educators who had (1) lived through a hurricane event which, in its aftermath, was declared a natural disaster and (2) been a resident of the US Virgin Islands for at least two years prior to their most recent hurricane-related disaster experience. Given that this was a study of community resilience to natural disasters, these delimitations were intentionally created to ensure that the

individuals being interviewed could demonstrate some knowledge of the local community (socially, culturally), as well as to ensure that they could speak to the process of preparing and recovering from disaster events that occurred specific to this community.

The study purposefully excluded post-secondary educational institutions because administrators and faculty at the university level generally do not maintain the same level of daily interaction and personal connection to their students as those in elementary/secondary institutions. Thus, they are perceived as having less intimate knowledge of a large portion of their students' and their lives outside of school. Additionally, social capital has been shown to be an influential part of students' (6th through 12th grade) preparation and pursuit of higher education (Bryan et al., 2017), thus teachers may have a significant influence on the choices their students make – including whether students consider local higher education or employment as a viable post-graduation option (which would be a form of investing back into their community).

Initially, purposive sampling was utilized in order to reach this population. Educators' emails were collected from publicly accessible web-based school directories or, for those schools without an operational website, emails were directly provided by administration and office staff upon request. An initial email with information about the study was sent out to as many educators within the two school districts as possible; a total of 742 emails were sent to educators at 16 different schools where contact information was provided. As individuals responded and were confirmed as meeting the criteria for this study, interviews were scheduled and carried out on a rolling basis. In addition, snowball

sampling was also employed once responses from the initial round of emails began to slow.

In the end, the sample included a total of 18 individuals – 16 teachers and 2 assistant principals – representing a total of eight (8) schools, *seven (7)* public, and *one (1)* private school, located between Saint Croix and Saint Thomas. Of the 18 individuals, 15 identified as female and 3 identified as male. More than half of the interviewees indicated that they had been employed in their current position for 11 years or more; two indicated that they had been in their *current position* less than 1 year, but both of these two had been educators in the territory for longer. See **Table 1** for further break down of the school sites represented in this study.

Table 1
Public and Private Schools Represented in this Study

	Saint Croix District	Saint Thomas/Saint John District
Public	St. Croix Central High School	Charlotte Amalie High School
	Arthur A. Richards K-8th School	Ivanna Eudora Kean High School
	Eulalie Rivera K-8th School	Addelita Cancryn Junior High School
		Bertha C. Boschulte Middle School
Private	n/a	VI Montessori School & International Academy

Challenges & Limitations

At the time that data collection for this study began, the COVID-19 pandemic was developing and ultimately lead to the US Virgin Islands being placed under quarantine and social distancing orders. This meant that schools throughout the territory switched from in-person to virtual learning and operations. In planning to carry out this study, I

anticipated that I would have to physically visit some of the schools in order to get educators' contact information. However, the stay-at-home orders coupled with schools moving to virtual operation made it impossible for me to physically visit the schools. When this study was carried out, the majority of the private schools in the Virgin Island either did not have operational websites, had websites that did not feature up-to-date information (e.g., school contact information, current teachers) or were unreachable by phone. Hence why the sample only includes educators from one of the more than 10+ private schools located throughout the territory. The same issues arose with the public schools, however, because I have personal contacts within many of the different public schools on Saint Thomas, I was able to work around these barriers as expected.

Further, this study was initially designed so that the interviews could be conducted in-person and include a quasi-photovoice component. However, the stay-at-home order required me to be flexible thus resulting in the switch from in-person interviews to virtual interviews. This switch also led me to make the decision (with the approval of my advisor) to remove the photovoice component of the study. Instead, those participants who did come to the interview with photos were still asked to describe the photos and how they represented qualities of the community they felt were important around the time of the disaster, but it was not considered a mandatory part of the process.

One final, unexpected challenge that I faced during the data collection process was once again a result of COVID-19. To reiterate, the initial research plan was to conduct interviews in person, but the quarantine required a shift. One of the reasons in-person interviews were chosen over the phone and/or video calls was that the cell signal and internet service within the territory is not the most reliable for a variety of reasons

(e.g., power outages, spotty signal). Thus, having to switch to phone and video interviews, while effective, was challenging especially because during normal circumstances one could venture out to an area where strong cell signal was known. With the quarantine order, however, it was sometimes impossible to do so.

The United States Virgin Islands represents a small island developing state in only one of the three regions where SIDS are located (i.e. the Caribbean). Although Caribbean SIDS share the same or similar inherent traits as all other SIDS, regionality plays an important part in determining the way/the extent to which these inherent traits impact these islands (environmentally, economically, socially). Differences in factors such as geography, climate/weather patterns, population size, and infrastructure may influence how disasters and recovery occur regionally. Nevertheless, the four main islands that make up the US Virgin Islands (to an extent) geographically, economically, and socially differ and therefore provide the opportunity to explore the same disaster events but within varying conditions.

Being that the US Virgin Islands is a United States Territory, it is also representative of one of the various types of SIDS. Again, this status as a United States territory, as opposed to a sovereign state, may have implications especially for post-disaster response and recovery in the form of aid, economic resources, and extent of dependence on international support. Additionally, 50% of all the small island developing states on earth are located in the Caribbean (UN-OHRLLS, 2017). Therefore, while the limitations previously mentioned may mean limited generalizability across all regions, this study remains relevant to the vast majority of SIDS.

Furthermore, this study draws on administrators' and faculty members' experiences and perceptions of students in relation to disasters rather than directly asking students themselves. Although intentional, the information received specifically in response to the few questions about students' coping and knowledge is considered 'second-hand' and may be better explored 'first-hand' with a later study that utilizes students as the sample population. However, with every exploration one has to start somewhere, consequently, this study provides the basis for future studies to capture students' perspectives.

Positionality and Reflexivity

My role as a researcher for this study warrants reflexivity. My upbringing and experiences allow some 'insider' access to this study's population and intimate knowledge of the phenomena being explored. I am a first-generation US Virgin Islander and native West Indian born and raised on the island of Saint Thomas. My father was born in Basseterre, Saint Kitts and my mother was born in Chicago, Illinois. Once graduated from high school, I relocated to the United States to attend university as many local high school graduates are encouraged to do.

I have been fortunate to have no direct experiences or memories of living through a category 5 hurricane of such strength that it resulted in the aftermath being designated a natural disaster – although I was born during one. Growing up in the Caribbean, I have experienced many (less-threatening) tropical storms and hurricanes which, until Hurricane Irma and Maria, have allowed me to live with a sense of normalcy and little anxiety around the onset of hurricane season. I was aware of course of the dangers that hurricanes pose, but never really considered that these dangers were something that I

would witness in my lifetime. As most youth my age who grew up in the Virgin Islands, the stories of the past disasters (e.g. Hurricanes Hugo/ Marilyn) were passed down in many ways such as through photos in albums and oral stories told as we all huddled around our kerosene lamps in the midst of whatever storm was on its way passed the USVI; we were raised on the stories of trauma and triumph that comes with recovery.

Prior to Irma and Maria, the islands' youth population (specifically those born after 1989) had primarily secondhand memories of how hurricanes have rocked our community to its core. Post-2017, a whole new generation of Virgin Islanders gained first-hand experience and must now live with those memories and traumas. Those within that generation who were fortunate enough to be abroad when the storms struck, like me, gained first-hand experience as well, but in a different capacity: as insiders living on the outside having to watch and wait as our island and loved ones struggled to survive, cope, and recover. More than ever, I became aware of how vulnerable small islands are to climate change.

This led me to ask myself, "what does resilience mean to people who like those in my hometown have been through one or more natural disasters and how do you address the vulnerabilities of such communities when there seems to be only so much that one can do to combat such devastatingly strong events?" Given all that I have shared, my intention is to attempt to answer these questions and to do so by amplifying the voices of individuals within communities like the USVI who studies like this are meant to benefit. Finally, by acknowledging the ways in which I have access to this population because of my background, I was also constantly reminded of the many ways in which my status as

an ‘insider’ is limited (e.g., I am not an educator, I have no natural disaster experience), which I considered to be a great asset as it reminded me to apply an objective lens.

Data Analysis

Inductive thematic analysis (TA) served as the data analysis method for the interview data. TA is an analysis technique “unbounded by theoretical commitments” (Braun & Clarke, 2012, p. 297) which Lapadat (2010) describes as a:

...a process of noticing patterns, attending to how participants label events, defining emergent themes, constantly comparing data against codes and categories, cycling back through documents to revise coding, recording interpretive insights in research memos, and developing data displays that reveal overarching patterns, the researcher builds a complex exploratory, descriptive, or explanatory case analysis grounded in the particulars of the case or multiple cases. (para. 5)

For this study, inductive thematic analysis of the interview data followed best practices demonstrated within the social sciences fields of studies. Transcription of the interviews began as soon as possible after each of the interviews were completed; field notes were attached at the end of each transcription. Data analysis began once all the interviews were completed and transcribed. To begin, the interview transcripts were read through in order to familiarize myself with the data. Next, I used the qualitative data analysis tool, ATLAS.ti code the interview data, line by line. The following example of how I coded the data initially is an excerpt taken from interview #6 and is *part* of one participant’s response to the question, “when you hear the term “community resilience” or hear someone say, ‘the USVI is resilient’, what does this mean to you?”:

(a) [Okay well. I definitely believe that young people in the Virgin Islands are resilient because I saw a lot of destruction.] I live in the Fortuna area and the amount of damages that were done to some people's homes, (b) [like I was lucky. Our house only received minor damages, but the amount of damages that the other houses received] and (c) [the way that the community came together and worked to encourage and you know, support each other that was amazing]. (d) [That was something that I never expected.] (e) [Actually, neighbors took – if your house was falling down in the middle of the storm, you call the neighbor and the neighbor went and helped you.] They (f) [endangered their life to get you out of the danger zone] and stuff like that. And (c) [how everybody worked together right after, including at work.] Because (g) [we had to report to work] as I said and (h) [the principal and assistant principals, everybody was so supportive. They, you know, they listened to you because a lot of our colleagues lost their homes.]

The codes applied to this excerpt are as follows: (a) youth are resilience, (b) positive perspective, (c) community came together, (d) expectations, (e) neighbors provide support, (f) example of support, (g) workplace responsibilities/work-life balance, and (h) support from superiors. Once initial codes were identified, I used the features of ATLAS.ti to begin grouping the codes based on the context of the quote attached to code and based on the emergent themes. For example, codes (c) community came together, (e) neighbors provide support, (f) example of support, and (h) support from superiors would have been grouped together to indicate community support. From the coding, the analysis revealed that participants' responses most clearly could be summed using the following themes: *Community Alliances*, *Social Recovery*, *Community Personifications*. After

reviewing the quotes and codes associated with interview data and considering the sub-themes generated, the final step was to create two larger themes, *Social Process* and *Embodied Identity*.

Trustworthiness

Where quantitative research requires the researcher to demonstrate the reliability, validity, objectivity, and generalizability of the data and study findings in order to substantiate its quality, qualitative follows a similar, yet different set of standards. To determine the trustworthiness of qualitatively gathered data, some accepted alternative standards have been constructed: credibility, dependability, confirmability, and transferability (Lincoln & Guba, 1985).

In order to meet these standards, I engaged in a few intentional actions. (1) Any information such as events, dates, and quotes shared in the interviews was double-checked using reliable data sources and documents from relevant sources (e.g. the Virgin Islands Department of Education, published newspaper articles). (2) A form of “member-checks” will be carried out in which I will share the results of this study with my participants, highlighting some of the main take-aways from the findings and discussion. (3) I kept field notes for each interview which I referred back to for context and as a means to organize the data and participants’ demographic information. (4) I intentionally kept track of the decisions made during the data collection and data analysis phases, making sure to note the reasons behind these decisions, and the parties involved in the decision-making process (e.g., academic advisor). Thus, the dependability of this study was enhanced.

Confidentiality

Participants were asked to sign a letter of consent (meeting IRB standards) before the interview was carried out. The letter explained that their participation was voluntary; clearly stated their ability to withdraw their participation from the study at any point and for any reason. Withdrawal meant that any data gathered from this person would not be used in the creation of this thesis unless the participant said otherwise. This letter also included a statement regarding the anonymity and confidentiality of the identities of the participants, as well as the security of their data being stored. All data collected was stored on my encrypted Google Drive account provided through Arizona State University which utilizes Duo Two Factor Authentication as an additional layer of security. Finally, the letter of consent provided participants with information regarding the purpose of the study and my contact information in case further information was desired. See **Appendix D** for the Informed Consent Form.

Ethical Considerations

Given that the most recent disaster events within the USVI occurred within the past 4 years, prior to this study being carried out, asking participants to share their disaster experiences could have elicited strong emotional responses or may have triggered unwanted feelings. The US Virgin Islands is still in the process of recovery, thus asking about personal perceptions of their community's recovery could have elicited strong feelings tied to culture, politics, economics, etc. Further, research has shown that natural disaster experiences often result in the development of PTSD or the exacerbation of other mental disorders such as depression and anxiety (Lindemann, 1944; Nolen-Hoeksema & Morrow, 1991) in survivors. Survivors may develop triggers to such things

as ambient sounds as a result of their experiences. Additionally, deaths of individuals in their social networks (e.g. family, friends, co-workers) resulting from the natural disaster may have led to negative emotions such as survivors' guilt – all of which potentially could have come out during the interview process as participants shared their stories. Fortunately, this was not the case during the interview process.

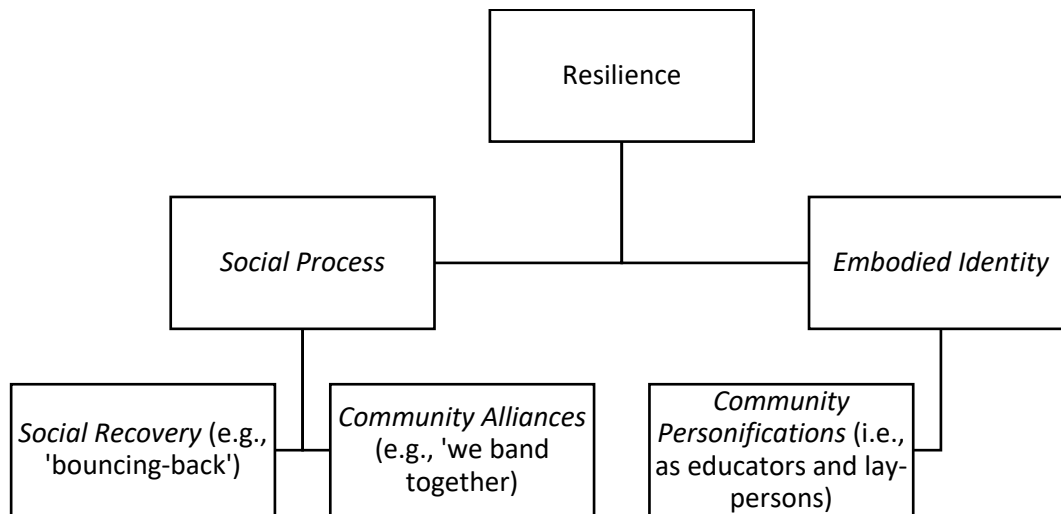
Additionally, given that this was a study of a population considered vulnerable in a variety of ways, it has also been necessary to recognize the legacy of academic and Western research for such populations (Zion et al., 2000). One goal of this study was to provide the population being researched with information relevant to their community in order to aid them in the process of recovery and future disaster prevention. In addition to providing my findings to relevant local (non)government entities, I will also consider ways, post-data collection, to demonstrate to my participants how their time and resources were utilized and the findings that came out of our meetings. (See **Appendix A** for IRB Approval).

CHAPTER FOUR

Findings

Inductive thematic analysis of the interview data provided insights into educators' subjective perceptions of resilience via the exploration of topics such as disaster preparedness and education in the US Virgin Islands. From the analysis, two main themes emerged related to participants conceptualizations of resilience: (1) *Social Process* which includes the sub-themes *Social Recovery* and *Community Alliances*; and, (2) *Embodied Identity* which includes the sub-theme *Community Personifications* (see **Figure 1** for a visual representation of the themes).

Figure 1
Visual Representation of Emergent Themes



Social Process

Analysis of the data collected from the interviews indicates that there is an expectation for rapid recovery and resumption of life to occur in the US Virgin Islands after a natural disaster. This expectation demands that residents – in their roles as individuals *and* community members – play a part in the disaster process thereby

ultimately contributing to the community's collective resilience. The discussion surrounding the topic of resilience as part of disaster experiences, from start to finish, provides a few key insights which emerge from within the following two sub-themes: *Social Recovery* and *Community Alliances*.

Social Recovery

An overwhelming majority of the interviewees defined resilience as the *ability* to “bounce back” from virtually any type of disaster. Given the purpose of this research, the interviews focused primarily on hurricane-related disasters; however, other types of disasters were part of the discourse. In the few instances wherein the term “bounce back” was not directly stated, participants utilized similar terminology (*e.g.*, rebuild, rebound, come back) which reinforced *Social Recovery* as a central part of how resilience is perceived by these educators. The following excerpts show how participants described their ability to “to get out of the rubble” (Interview #16, Female) and are examples of definitions participants provided which begin to illustrate how the sub-theme, *Social Recovery*, emerged:

...We can stand up and take whatever mother nature throws at us, like right now with COVID-19. You might grumble about it, but you will comply because it's the best thing to do. You're gonna *bounce back*... You [referring to society] do what you have to do to get the job done – whether it's helping your neighbor get food, build a fence, shoveling mud, [or] the different things we had to do at school. So, [*being*] *able to bounce back from anything* that is handed to us. [Interview # 2, Female]

I think *bounce back*. That's the first thing that comes to my mind when I think of resiliency... People didn't just stay housed up in their shells waiting for help to come. I

saw men out in the streets immediately with machetes, cutlasses, chainsaws, and tractors... I think that people accept disaster a little differently here than they would in the states. Here, people can get up and start moving... *People will react immediately to rectify the situation or fix it*, as opposed to just waiting for somebody to come and fix it. That's resiliency in itself, just acting, just getting up and acting... Resiliency again, [is] people just *bounce back* immediately. They just fix it themselves instead of waiting for somebody to come and fix it for them. [Interview #18, Male]

We come back. We build back. We have to. *We have no alternative. We have to build back.* We are not the most patient people, so sometimes people get a little bit antsy because the wheels of progress move very slowly, but *the mere fact of our location really makes things a bit more challenging.* [Interview #3, Female]

Consistently, participants described resilience using a tone of voice which made it sound like a matter of fact, an involuntary process. It is not simply something to achieve because it is a necessary part of life. In fact, throughout the interviews, the inclusion of statements such as “we have no choice” reinforces this notion that resilience in the form of social recovery is not thought to be an optional part of the resumption process.

For me, it's that *we have been through this before.* It's nothing new to have your world upended from a disaster and then to rebuild and come back from that. We've done it after Hugo, we've done it after Marilyn, we're doing it after Irma and Maria... and we'll do it again after this pandemic that destroys our economy. Resilience is always just getting back up and, in my opinion, our community knows *we have no choice but to get back up*, dust yourself off, and just keep pushing. [Interview #5, Female]

...It was not a matter of depression. It was a matter of *this is what we experienced, let's band together and improve*. I think [people] were deterred, but they weren't defeated. Speaking from personal experience, I do not think that anybody just totally gave up. [Interview #8, Female]

Although much of the general discourse throughout the interviews resulted in a focus on post-disaster impacts and recovery, participants' responses do unmistakably illustrate that pre-disaster preparedness is also a central part of social recovery. In the USVI, hurricane preparedness may occur all year round and is not contingent upon there being an immediate, actual threat of a hurricane. Rather, simply knowing that there is *potential* for other disastrous events to occur – whether the next year or in 10 years – prompts Virgin Islanders to act. Natural disasters are a familiar part of life for those living in the US Virgin Islands. In the last 25-30 years, the USVI has experienced five natural disaster events as a result of hurricanes; and although every hurricane season does not result in destruction enough to be categorized as a disaster, the threat of such events remains real. Thus, as the following excerpts demonstrate, the extent to which the community will need to recover, post-disaster, is partially dependent on how well they prepared, pre-disaster.

...*we're so accustomed to preparing and nothing happening* that some people didn't take it as seriously...like...stocking up with your water, preparing yourself, closing your hurricane shutters, and so forth. Everybody didn't take heed. So, in regard to preparation they were good in regard to letting you know this is what's happening, what's coming but there's only so much they could do because nobody expected it to hit in such a high category. [Interview #8, Female]

We just realized after Hurricane Marilyn that when we were rebuilding our house [we needed to] *build with some additions*. Like we built a hurricane hole. So, [during the hurricanes] we eventually did get to go down there in the hurricane hole. My husband works for the cable company so, at that time he used to go into homes. He was able to see and get some ideas about what to do and not to do when building your house. [Interview #9, Female]

One of the things that I learnt to prevent major disasters from happening in my home was to let the air circulate. I learned that from my first [hurricane]. [During the first hurricane] everything [in the house] was shut down and the windows and the door was sucked out of the house. For the next one, even though we had some shutters, we always left room for the air to come from one side of the house to the other. We applied that. When you go through a storm, they tell you so many things. Some people say close everything tight and others tell you to leave it open. The first time we had everything closed and the second time, we realized that by leaving everything open it was better, less pressure and we used that. It worked and it worked for the next one and the next. [Interview #7, Female]

Having these repeated disaster experiences may create expectations around these events which can be both a negative and positive influence on the preparedness stage. How people prepare and the extent to which they do so may have implications for the degree to which the community has to ‘bounce back’. At different junctures in the interviews, participants acknowledged their inability to prevent these events from occurring and their limited ability to ever be fully prepared for the impacts of hurricanes. Clearly, even though the threat may not always be taken as seriously as the situation demands, some basic preparation occurs – mainly the collection of non-perishables and the fortifying of

infrastructure. The above excerpts, used to demonstrate the sub-theme, *Social Recovery*, also signifies that the process of resilience is initiated when the community coalesces towards the common goal of resumption.

Community Alliances

In speaking to resilience within the territory, interviewees shared how (non) governmental organizations/agencies and local celebrities mobilized their resources in the aftermath of the hurricanes to collect and distribute supplies throughout the islands. Most participants spoke of organizations in general without naming specific agencies. However, the few that were mentioned included non-profits such as the Red Cross, government agencies like the National Guard, and local influential persons living abroad such as Tim Duncan (former NBA player) and R City (singer-songwriter duo). These entities, whether based locally or abroad, mobilized rapidly utilizing private means to infuse the islands with the supplies and help needed to jumpstart the recovery process. These were especially essential in the immediate aftermath of the storms as the islands were cut off from the outside world due to the immobilization of the ports.

Community resilience to me is saying that, as a community...*We're not necessarily able to stop things from happening*, but when something does happen, we band together and we get out of the rubble together and start building stronger. [Interview #16, Female]

When I think about community resilience, I think about the *community individuals, organizations, [and] groups* getting together to help us basically bounce back [and] recover from anything that we may have experienced. ...I think about persons like the various [local] music artists [and] Tim Duncan who organized these big trailers on both islands for deliveries. ...there were organizations [that] got together and they created pallets and they

had deliveries made privately so that people could have supplies because at the time the airport was closed to come in. ...the Red Cross and so forth came around and were with the distribution centers. They all made sure that you had something. [Interview #8, Female]

I will always remember Schneider Hospital. ...every time I see Schneider Hospital, I remember it was my comfort because...we were there every day charging our phones and sitting there enjoying some cheap, nutritious meals. They put up things that people could use to charge their phones. [Interview #10, Female]

According to participants, these organizations and celebrity figures primarily served as a central source of information, supplies, and support for the general population. In other words, all residents could intentionally access the resources these entities had to offer and were expressly encouraged to do so. Some participants also described how having these organizations and persons create central locations for community members to travel too provided them with the opportunity to interact with people in ways that the storms made difficult (*e.g.*, lack of cellular service, internet connection, and inability to travel certain routes). In addition to the intentional and reliable support residents received from these entities which helped them to cope and bounce-back, participants also described the influence of their interpersonal relationships stemming from personal family and social networks, job connections, and other informal sources. For example, a few persons shared how they directly received special support from businesses/agencies as a result of theirs or a family member's job affiliations. The following excerpts provide further examples of these informal community alliances.

... There were special organizations that would just announce where one could go to collect water and food, and to me, everybody was on board. Whatever we had to work with at least

there was support. The Department [of Education] was a great support, they came along [and tried their] best in every way possible. And you know too the AFC, our union, came on board too. They helped some other sister unions and helped send some materials. [Interview #10, Female]

Strong family involvement always helps. For example, we lost our roof during Hurricane Irma and then the rest of the houses flooded after Maria. So I was able to stay with a cousin for 3 months, at least until we got our house together. And then of course my father and my grandfather's connections with contractors help them to get the house re-roof, [so we] rebuilt rather quickly compared to others. [Interview #5, Female]

I think the school really came together to help each other as a unit school. We got generators donated to our school for our teachers, so we were able to distribute generators for those that was in need. Just had a place for just I guess internet access and power if you just needed power. So, the school was like our hub, in case you needed anything. [Interview #18, Male]

Within the school community, it would be our teacher's union. They provided a lot of support in terms of giving support and supplies to everyone. They coordinated pickups [of] just simple things like cleaning products, flashlights, and food. The union would tell us where to meet and they would distribute the supplies. [Interview #3, Female]

...my husband is in the National Guard. Unfortunately, though he was away for training when the hurricane hit. [Before the hurricanes hit] I had to call in favors from the National Guard and say 'hey, I am basically man-less over here I need some assistance'. So some came and helped me shutter up my parents' home... I know this is a benefit of him being in the national guard [but] they came by the house. [Then] I had left the island and when I

came back, all my windows were already boarded up. They found wood from somewhere and they boarded up my windows and my doors while I was gone. I left and I came back and I was like, ‘oh’! Then you know, they brought me some supplies and stuff like that.

[Interview #8, Female]

Recall that the sample population for this study consists of Virgin Islands educators, hence the almost exclusive mention of school-related connections and relationships. Also, note that up to this point in this sub-section participants’ descriptions of the benefits received from their association with (non) governmental organizations and their family/friend connections are primarily *physical* in nature. Such things as being provided with shelter, food, water, building materials, and other such items fall into the category of physical support. Interestingly though, when these educators mentioned their personal relationships *specifically with their coworkers*, they primarily described emotional support. For example, participants shared that simple acts like having a conversation with a coworker helped them to mentally cope and accept their situation.

Personal relationships helped because if you have a good relationship with the people you’re working with, or are just friends, I think to just reach out every now and then to say, “hey, how are you doing? I’m thinking about you”, that goes a long way in at least helping, even if it’s just for a few minutes, to kind of just *take that edge off* and just allow you to get back to *sense of normalcy*. [Interview #12, Female]

At that point, your personal relationships are the ones you have on the job. It made it easier to have that network – *that all of us were going through the same struggle*, trying to rebuild, and trying to get things back together. That was my definite network because the only family I have here is my brother and my husband’s mom and dad. [Interview #13, Female]

Of course, it would be a mistake not to point out that a few of the interviewees who did emphasize the emotional support they received over physical forms of support, were individuals with little to no family living in the territory. Still, where emotional/mental support is highlighted, even those with greater familial connections on the islands shared the sentiment that knowing others could empathize with their situation, as well as simply having someone to talk to helped individuals to normalize their situation. It is partly the ability of these residents to adapt to the new normal that also demonstrates why Virgin Islanders also embody resilience as will be discussed next.

Embodied Identity

In addition to being asked to define and describe resilience, interviewees were also asked to indicate the level of resilience they felt was present in the US Virgin Islands. Speaking generally given the data, the US Virgin Islands is perceived as having the capacity of being highly resilient to natural disasters. Upon deeper analysis of participants' responses, the underlying perception is that the territory's resilience is underscored by the fact that Virgin Islanders are resilient. The people identify as resilient and the people embody resilience; thus, the territory is resilient; hence the theme. The sub-theme *Community Personifications* came to be as a result of the conversation of *Embodied Resilience* of people being dichotomously split between a general discussion of US Virgin Island citizens' resilience in addition to a more specific focus on US Virgin Island residents who are educators.

Community Personifications

The interview data show that US Virgin Islanders' embodiment of resilience is linked to two general views. The first is residents' confidence in their ability to 'bounce-

back' based upon the fact that local history demonstrates the many ways the people have done so in the past in response to varying stressors. Not only is the local history of natural disaster resilience utilized to solidify the sentiment of embodied resilience, the history of slavery, and the resulting slave rebellions were also included. The strength displayed by ancestral Virgin Islanders (*e.g.*, Queen Mary, Agnes, Mathilda) is seemingly connected to the current day strength and resilience of Virgin Islanders. This first sentiment is depicted in the following excerpts:

When I'm thinking of resilience, I think of the ability to get through even the worst of times and land on your feet, you know, in one way or another. I'm thinking of the slaves demanding to be emancipated. I'm thinking of the Fireburn [rebellion]. These people were just amazing. They risked everything even though they had nothing... and, as a result, *the people are strong*. Yes, we're poor here on the island, but I think that we're survivors... a huge part of resilience [is] the ability to adapt with different changes that are thrown at you whether they are desired changes or not. [Interview #13, Female]

...And so, when other disasters come, there's the foundation of resiliency... [We say], don't worry about the problem. We got this covered. I don't know what the solution is right the second, but we have the perspective of finding solutions and improving. So, don't get flustered. We got this covered. Our *DNA is solving problems*, our DNA is getting better. [Interview #1, Male]

The previous excerpts also hint that part of the Virgin Islands' resilience is "getting better"; although the point was made to a lesser degree, the ability to get better rather than simply bounce-back is clearly part of the identity of resilience participants described. The following excerpt more plainly states this concept:

Whenever I hear [resilience] I always think about that term of *being stronger together*. Virgin Islanders are very resilient. We are going to work through this, we are going to get through it, come what may and *we are going to be stronger because of it*. [Interview #10, Female]

The second sentiment stems from residents' vocal acceptance of hurricanes (and other natural disasters) as unavoidable, uncontrollable, and therefore, inevitable parts of life in the US Virgin Islands. Coupled with the belief that ancestral resilience has been passed down through the generations, it becomes clearer why residents describe resilience in the way they do:

The Virgin Islands is *very resilient*. *In order to live here, you have to be resilient*, because you have to know that every so many years, you're going to get hurricanes or some sort of a natural disaster of some sort or another. An earthquake, we're in an earthquake zone, you know, a tsunami...It could be any of those. Now the Coronavirus is really another natural disaster, although that's a global pandemic. I think that in order to live here, you've got to be resilient because *it's part of life here*. [Interview #12, Female]

The *community is resilient* because *we did not allow* the storm to keep us in a stagnant state. We went right back to work or they had us return right back to work to, I guess, start the process of rebuilding. For some, it may have been mixed feelings, but it just shows that we wanted to get back to where we were. Even though you've been hit the hardest you still – you know, you don't just stay in that state. You're defeated but you still kind of build-up. [Interview #14, Female]

We're a *very resilient people*. Extremely. I think we've had experience with having to rebuild our economy and we always come back and we do things differently. Of course,

it's not 100%. *There's always room for much-needed improvement and that will always continue to be the case.* I think we're very resilient. Economy, community, education, it's all connected. Everything needs to be in working condition for there to be progress. Do I think we need work in all three? Yeah. [Interview #5, Female]

Despite admitting that improvements within various sectors and systems need to be made which would help the resilience of the territory, participants did not change their evaluations of the islands and therefore their resilience. This is yet another example of how the underscored theme of *Embodied Identity* was reinforced. This theme connects back to those responses in early sections where participants talk about achieving *Social Recovery* by making do with what they had/what was provided. This point was further established as the interviewees, who as a reminder are local educators throughout the territory, spoke about the perceived impacts of the hurricanes on their students. Some of these educators have had the unique opportunity to observe the impacts of the storms on different generations of students over the years. The inclusion of students in this discussion was not only relevant because of the interviewee's occupation, but also because the youth of the territory represents the next generation of general citizens who are also considered resilient. They will also have to contend with hurricanes in their future. Therefore, calling into question youths' ability to embody resilience as seems to be culturally expected, is a powerful part of this discussion. The following excerpts demonstrate educators' *perceptions* of their student's resilience.

They were happy. *Kids are more resilient* anyways than adults are. We agonize every day that we don't have a field, we don't have an area to play softball, we don't have this or that and the kids are excited to go down on the track. And you're like, okay, it's the little things

in life. They're the ones that bounced back quicker more so than the adults. [Interview #2, Female]

They are *surprisingly resilient* because we went from a school where we had space where we could do basketball, track meets, volleyball – anything we wanted to do, we had space to do and we utilized it. After the hurricanes, they condemned our school. We were shifted to Charlotte Amalia High School on split-session. That kind of curtailed what we could do, but whatever we did, *the children were receptive*. [Interview #3, Female]

Note that when speaking about how embodied resilience manifests in adults, the educators described adult citizens' ability to recover physically and, to a lesser extent, emotionally. However, when speaking about their students, educators identified students' mental health and emotional well-being as the main indicators of their resilience.

To be honest, I've always said that *kids are resilient*. Kids bounce back. They bounce back. So, there would be the few who would be traumatized by it...who would need maybe somebody to help them through, have conversations with them... [because] they may pick up psychological issues along the way, but kids are really resilient, and given time, they do bounce back. [Interview #16, Female]

This is harder to ascertain because a lot of that is emotional and psychological. I know I had one student when I gave an assignment, she relayed her experiences, and she said that *sometimes she has PTSD* where if she hears a thunderstorm, it triggers certain feelings that she had during the storm. [Interview #5, Female]

I think some of them have PTSD. Particularly the younger generation. I know one of my friends, her children couldn't deal with the sound of rain. They're really scared because they think another hurricane is coming. The government did provide a lot of resources and

they had opportunities for persons to come and speak to mental health professionals if need be. Not only as a black community but as a Caribbean community, I think there's stigma related to mental health and reaching out and speaking to someone. [People say] "I don't want nobody in my business", but sometimes you need somebody who is not biased. Also [being able to] talk about it - there was a lot of talking about the hurricane [and] I think that helped too because you were able to express your fears and your frustrations, and you had other persons who could relate to what you were going through. [Interview #8, Male]

Greater exploration of youth populations' psychological states pre and post-disaster are necessary to draw conclusions of more substance. However, basing the findings solely on educators' observations of their students, it appears that students portray themselves as resilient. Consider also that the last disaster events caused by Hurricanes Irma and Maria in 2017 were the first time any persons born after 1995 would have experienced a disaster event in the US Virgin Islands. A substantial part of students' knowledge of the storms and awareness of how to prepare and what to expect comes primarily through stories told by people in their personal networks (*e.g.*, parents), through their formal education at school (*e.g.*, via curriculum), or from public awareness campaigns. The findings under the *Societal Recovery* section illustrated the value of experience as part of the resilience process. Those who lack first-hand experiences are able to learn from others, given the opportunity. This is especially true for students within the US Virgin Islands. To paraphrase one participant, the educational system alone cannot be responsible for imbuing students with all the knowledge they would need to successfully navigate a storm. The role of education is to pick up where other sources of knowledge (*e.g.*, family,

community) lack. This is why educators are an important part of resilience building in the territory.

The individuals who participated in this study occupy two roles of importance to this data: they are both US Virgin Islands *residents* and *educators*. In their roles as general citizens, these individuals can contribute to resilience in the territory in the many ways that have been previously expressed. As educators, they are in a unique position to further contribute to the resilience of the community both in the process (i.e. helping to restart educational infrastructure) and through embodiment (*i.e.*, teaching students about their peoples' history of resilience).

Well educators allow for continuity...we consider what's going on a disaster but, as an educator...there's no stopping to what we as educators need to do to help our community. To keep you going like this - this trains that that doesn't stop. That's, that's what we are. We're the engines to the community. I'm not boasting or building up our position, but I think a lot of people have had some renewed appreciation for the education system and for teachers. [Interview #13, Female]

When you think about hurricanes and you think about natural disasters you are thinking about two subjects, history and science. You know, history being the geographical makeup – where hurricanes usually hit – and science being how they are formed. So, I personally feel that is something that should be taught [and] integrated into the curriculum. Our students shouldn't have to find out about a hurricane after it's done and then we go to school and teach them all about it after the fact. It should be something that should be done from before. As early as first grade, children should be exposed to the knowledge and the effects of hurricanes and the effects of natural disasters. [Interview #15, Female]

As participants pointed out, one step to teaching students how they themselves can tap into the resilience that their community shares is by raising their awareness of islands' vulnerability to disasters and by teaching them how to bounce back physically, but most importantly, mentally.

I think our children are almost zero aware of life in general. I deal with 12, 13, 14-year olds. I do not think that they have gotten to that stage where these things are important to them and that is why as teachers, as an educational system, and as a government, it is our job to provide the information for them. Because...unless we show them the importance, they don't see it as important. They will not go out and look for this knowledge. They will not go and say, "let me read up about hurricane and see what's going to happen". Yes, they know hurricane season is coming but that's as much as they know, that's as much as they want to know until something happens. I think we need to make sure that they understand, not just know what it is but understand the consequences, the causes, all of it. [Interview #16, Female]

Once school started, we had the opportunity for students to basically destress and talk about their experiences...I think that helped them. I think the purpose of educators and the school was to get them to normalize, to get things back to a regular schedule for them. [Interview #8, Female]

Doing so requires that educators not only teach using the resources provided by their schools (*e.g.*, textbooks), but that they supplement the textbooks and online resources by sharing their first-hand experiences and personal knowledge with the students.

Half of formal education is also teachable moments and *sharing your personal experiences* with your students. I think that's what makes education what it is. Not just learning from a book, but it's *learning from the people around you*. [Interview #5, Female]

I believe that the community and teachers have a big role to play in making sure that the students are aware of what's going on. That they do not just rely on their parents, but that they do know those facts are passed on to us because we have experience. [Interview #6, Female]

As an educator, we can only talk about our experiences. We can use our experiences in our professional roles to help our students [by teaching them] to be better prepared next time, teaching them how to explore their feelings and coping mechanisms. We do play a role in different aspects. Not really textbook education as we know it, but...like [using] life experiences, touching those emotional issues, teaching coping mechanisms [or] teachable moments. These are all things that I'm thinking provide help. [Interview #18, Male]

As general citizens with the unique opportunity to intentionally and directly pass on their knowledge to the next generation of Virgin Islands citizens through their professional roles within the community, their potential contribution (or lack thereof) to their community is generational and extends beyond the school environment. As many participants mentioned, through their students, educators also extend their knowledge to parents and other persons within their students' personal networks.

The biggest role will be to prepare our students. To educate them as to what's happened, how they can prepare, how they can be proactive in making sure that they're safe and *sharing that information with their parents*. [Interview #3, Female]

In school, we need to tell our students and explain to them - like right now with this pandemic that we have - what a disaster is. We need to make them aware of how they need to be cautious, how they need to be prepared. Sometimes the *students are the ones that educate the parents*. That means we need to be assured that we do not impart fear but just educate them. [Interview #7, Female]

What educators do is teach kids that perspective - not just kids, teach families, our grandparents - that perspective of we can get better. [Interview #1, Male]

The findings indicate that educators are aware of the dual role they play as community members and a community resource especially in regard to their *Embodied Identities*. One additional thing that really stood out across these interviews was the way these educators spoke about having to balance their home and work life after the storms. Participants described having to report almost immediately to work after the storms hit in order to assess the damage and begin formulating a plan that would allow students to return to school. They described having to split their focus between making sure everything was alright in their homes if they were lucky enough to still have their homes, to doing their best to maintain a working environment for their students. This duality of responsibility is yet another factor that should be taken into account when considering the findings.

United States Virgin Islands' resilience, as defined by this sample of Virgin Islanders, appears to be reaffirmed each time a disaster hits and the territory recovers. Although infrastructure and economic stability are clearly acknowledged as being part of recovery, it is not clear whether residents would label themselves as *not* resilient if

infrastructure and other systems failed. This is again because resilience appears to be as much a part of the people (*i.e.*, embodied through identity) as it is their ability to make their circumstances work for them.

CHAPTER FIVE

Discussion

To summarize the previous section of this study, inductive-thematic analysis of the data indicated two key findings with the first being that participants hold positive perceptions of their community's ability to effectively engage in a process of 'bouncing-back' as a response to their prolonged exposure to natural disasters. This finding directly reflects the data featured within the theme *Social Process* and is intricately linked to the academically rooted conceptualization of the process of resilience, which is described as a "dynamic process wherein individuals display positive adaptation despite experience of significant trauma or adversity" (p.543). Positive adaptation or the production of positive developmental outcomes (Brodsky, 1999) is achieved when individuals engaged in the process of resilience demonstrate the *ability* to harness their *internal* and *external* resources in order to recover. From the data analysis, *Social Recovery* linked to individual and community past experiences of the storms can be considered an *internal* resource and the relationships/networks that make up the *Community Alliances* can be representative of *external* resources. Furthermore, community members' ability to utilize their individual experiences and skills for *Social Recovery* and their reliance on *Community Alliances* for psychological and physical support in order to collectively recover is generally referred to in extant literature as *competence*; a term used by many within child Development and psychology, and human development literature to further portray the resilience process (*i.e.*, Egeland, Carlson, & Sroufe, 1993; Waters & Sroufe, 1983).

Much like the concept of resilience, *competence* is still part of active academic debates within the social sciences (see Luthar & Zigler, 1991; Masten & Obradović, 2006; Rutter, 2007; Waters & Sroufe, 1983). More specifically, the discourse centers on clarifying what internal and external resources are (also described as protective factors by Rutter (1985)), in addition to determining how these resources manifest/contribute to resilience in both daily adverse experiences and at the onset of large scale, traumatic events. Something that has been concluded is that protective factors can be positive or negative in nature *and still* act to enhance a persons' ability to resist or deal with stress (Egeland et al., 1993; Rutter, 1985; Waters & Sroufe, 1983; Yates, Egeland, & Sroufe, 2003). For example, participants in this study described how past hurricane experiences (an internal resource or personal protective factor) have had an influence on the extent and manner to which they prepare for new events. Many of the participants spoke of the hurricane experiences as traumatic occurrences hence the assumption that individuals might readily classify these experiences as negative. Nevertheless, participants steadfastly cited how these past, (potentially) negatively perceived experiences helped them to prepare for future events and helped them to normalize the devastation left behind in the wake of new hurricane events. Residents' past experiences and accumulated skills also appear to empower individuals within the community as to their ability to face new experiences (e.g., enhancing feelings of such things as self-efficacy) (Constantine, Benard, & Diaz, 1999; Rutter, 1987).

The personal, familial, and broad social relationships/networks which participants were able to derive emotional and psychological support from – explicated within the sub-category on *Community Alliances* – are quintessential examples of the types of

external resources (environmental protective factors) identified in extant literature that discusses protective factors (see Constantine et al., 1999; Egeland et al., 1993; Jacelon, 1997). In the same way that past experiences and positive perceptions of self-efficacy allowed individuals to normalize their traumatic experiences, the ability to interact with others within their networks was said to have a calming effect; this was primarily because knowing others could relate and empathize with their situation provided individuals with some level of psychological comfort. For those who had never experienced a hurricane before, being in proximity to community members who had been through these events and could speak to the perceived resilience of the community, was also a source of comfort because they could *trust* (Constantine et al., 1999) that someone had the knowledge, experiences, and ability necessary to help them produce positive outcomes.

Rutter (1985) best summarizes the role internal and external resources have in the resilience process through the claim that protective factors refer to “influences that modify, ameliorate, or alter a person's response to some environmental hazard that predisposes to a maladaptive outcome” (p. 600). Thus, extant research demonstrates that it is not necessarily how a person came by their protective factors that is relevant to the process of resilience, so much as whether the protective factors can positively influence the way the individual utilizes them to resist or cope with stress. Other academics (*i.e.*, Constantine et al., 1999; Werner, 2000) have focused on identifying the characteristics of these internal and external resources which are otherwise referred to as protective factors. Offering a synthesis, Waters and Sroufe (1983) describe personal protective factors as “rang[ing] from specific skills and abilities to general constructs such as self-esteem and

from characteristics which are very environmentally labile to those which are highly stable...across environments and age” (p. 82).

Concerning environmental protective factors (external resources), further clarification is warranted. Environmental protective factors are not merely physical or biological environmental resources, but rather are representative of social-environmental bonds and relationships which operate on trust (among other constructs) to provide comfort, support, or buffers that help individuals cope and produce positive outcomes (Werner, 1989). For example, participants who lost their homes to the hurricanes shared that their connection and proximity to family (e.g., *Community Alliances*) made it possible for them to move into the homes of their family members rather than into a shelter where they might experience greater anxiety as a result of the unfamiliar and not ideal environment. Moreover, when thinking about a community and how individuals are able to share information/resources within-groups and across-groups, it becomes further apparent how widespread the benefits of accessible relationships and networks are in the resilience process. Participants demonstrated this when describing how lack of electricity and infrastructure broke down many of the normal channels of communication; as a result, the community relied on information to be shared via word-of-mouth and they were encouraged to do so in order to reach as many people as possible.

Additionally, Waters and Sroufe (1983) argued that while the existence of and access to internal and external resources are a necessary part of resilience, most important for the process is an individuals’ ability to “mobilize and coordinate these resources in such a way that opportunities are created and the potentials or resources in the environment are realized; again, for a good developmental outcome” (p. 83). Participants

in this study very clearly indicated that mobilization and coordination of their resources, exemplified as protective factors, created an essential foundation of support for the individual within the community that fueled the collective recovery process. To provide an example, one participant described the residents adopting a mindset of "...this is what we experienced, let's band together and improve ..." [Interview #8, Female].

To summarize, the information shared thus far highlights three dimensions of resilience as process. First, individuals possess protective factors or have access to resources that have the potential to ameliorate stress. Second, individuals demonstrate *competence* also known as the ability to coordinate and mobilize their protective factors with the express intent of using them to deal with the developmental issues they face as a result of adversity or a stressor. Finally, individuals who are able to demonstrate competence will produce positive developmental outcomes thus placing them in a better position to effectively deal with future impacts (although neither automatically nor completely sheltering them from future impacts) (Luthar & Zigler, 1991).

The literature discussed thus far tends to focus on the conceptual application of the process of resilience as it relates to adolescent and at-risk individuals facing issues such as childhood trauma (Carbonell et al., n.d.) or single parentage (Jacelon, 1997). All the information that has been discussed thus far has been useful for researchers in terms of highlighting micro-scale issues such as at the individual level, but not as strong at shedding light on the implications for macro-scale issues such as at the community level. It is a relevant conversation to have as communities are made up of individuals who each possess their own unique protective factors which can be collectively mobilized to enhance the community's competence; and research of the *community resilience* concept

carried out by persons such as Magis (2010) indicates that resilience in a community is characterized by "...development [and] engagement of community resources, active agents, collective action, strategic action, equity, and impact" (p. 402). In the context of the present study centered around natural disaster impacts in *small* communities with limited resources, recovery is a community effort rather than a solely individual effort; hence why participants stressed things such as "we band together, we get out of the rubble together and start building stronger [together]" [Interview#16, Female].

At the community level, returning to a sense of normalcy as soon as possible, post-event, seemed to be the baseline positive developmental outcome - representing one stage in this dynamic process. According to Buzzanell and Turner (2003), normalcy is constructed by individuals as a response to a stressor. Applying a social constructionist lens, individuals "make an effort to portray their lives as being similar to the way things were before..." the stressor or the event by "identify[ing] and retain[ing]...the...rituals, events, and relationships [that] are most important to them" (pg 51).

Beyond locating a sense of normalcy, the desire to improve by learning from past experiences and by taking advantage of the time between events may be considered the long-term indicator that positive developmental outcomes are being produced thus representing another stage of the dynamic process. Both the findings of this study as well as the literature discussed within this section highlight the dynamic or fluid nature within which people perceive resilience. Participants displayed a level of acceptance that they will inevitably contend with natural disasters in the future and therefore, even when they recover from the impacts of a past event, they must remain engaged in the resilience process (e.g., mobilizing their internal and external resources to improve). However,

participants did not only describe resilience as dynamic or fluid in nature but they also sometimes referred to it in a way that implied finality as seen in the theme, *Embodied Identity*; and this was manifested in how they described themselves as individuals, independent of the collective.

The second finding of this study was that participants not only believe their community is able to effectively *engage in resilience*, but that the individuals that make up the US Virgin Islands (USVI) *are inherently resilient*. In the findings, participants described this state of resiliency as a byproduct of elements such as ancestry, proximity to others in the community who demonstrate competence or embody resilience, or as a requirement of living in the USVI. The discussion of protective factors also emerges in texts dedicated to explaining *Embodied Identity*, as opposed to *Social Process* (Carbonell et al., 2002; Constantine et al., 1999; Freitas & Downey, 1998). In both instances, protective factors form the basis for why/how persons produce positive outcomes. However, the main difference in discourse is that trait resilience highlights the *accumulation and possession* of protective factors, while process resilience highlights the *mobilization and coordination* of protective factors. Furthermore, academics such as Buckner, Mezzacappa, and Beardslee (2003) point out that individuals “who exhibit positive outcomes without having experienced significant hardship of one sort or another could be considered competent but not resilient” (p. 141) (see also Masten & Coatsworth, 1995). From an academic standpoint, characterization as resilient is “most meaningfully applied to persons who are exhibiting successful adaptation even though their...prior experience has placed them at heightened risk for maladaptive outcomes” (Buckner et al., 2003, p. 141).

The category of *Embodied Identity* evident in the findings of the current study, effectively demonstrates the shift in how participants described their community's collective *resilience* versus individual community members' characterization as *resilient*. Interpreting the data, participants primarily alluded to three key elements, namely, (in)direct past experiences, social and cultural capital (such as history and community values), and proximity to those who have successfully engaged in the resilience process; all of which as one person put it, have created a "foundation of resiliency" [Interview #1, Male], which all individuals within the community inherit and/or operate within. The three aforementioned elements can be referred to as protective factors (see Carbonell et al., 2002; Jacelon, 1997), however, the purpose they serve in the explanation of process versus traits differs. Denham (2008) provides further insight into this via his exploration of historical trauma in the context of family resilience in which he paraphrases Neimeyer and Stewart (1996, p. 360) by stating that, "trauma narratives transmit strength, optimism and coping strategies that family members internalize and use to 'emplot' their own narratives, or organize 'life events and experiences into a coherent and ever-evolving story'" (p. 393). This is best evidenced within the excerpts provided in the discussion of educators within the *Community Personifications* sub-category of the findings. For example, one participant used the following to defend their determination of Virgin Islanders' resilience: "I'm thinking of the slaves demanding to be emancipated [and] ... the Fireburn [rebellion]. These people were just amazing. They risked everything even though they had nothing... and, as a result, the people [here] are strong" [Interview #13, Female]. Perceptions of self as being resilient may be demonstrated in the way people

develop their identity connected to past and future traumas (*i.e.*, ego) (Beardslee, 1989; Buckner et al., 2003; Rutter, 1993).

The *Embodied Identity* theme also emphasized the physical traits of resilience which, based on the findings of this study, seemed to primarily be linked to the expression of feelings that there was a lack of alternatives, a presence of clear expectations of individuals to demonstrate resilience, and a desire to feel a sense of normalcy. It is important to remember that the sample population for this study was made up of USVI residents who are also educators. According to participants, it was evident that being in the school setting provided a sense of normalcy for school-age youth in the territory. Most importantly, being at school allowed students to regain access to external protective factors outside of their family (e.g., friends, teachers, community members) which research has shown promote resilience in youth (Buckner et al., 2003; Carbonell et al., 2002; Christiansen & Christiansen, 1997; Constantine et al., 1999; Smokowski, Reynolds, & Bezruczko, 1999). These educators perceived their students as resilient despite the fact that prior to the 2017 hurricanes, many of the students had no experience with natural disasters. According to educators, the youth population, purportedly used their skills to eagerly adjust and adapt to their new circumstances – at least within the school environment. For example, one participant expressed that “*kids are more resilient* anyways than adults are. We agonize every day that we don’t have a field, we don’t have an area to play softball, we don’t have this or that and the kids are excited to go down on the track” [Interview #2, Female]. The trait of resilience in this manner is not so much reflected in the ego as was pointed out for when participants spoke of general citizens’ resilience, but rather reflected physically through attitude.

When scholars define resilience as a process, protective factors are the mediating forces that allow an individual to produce developmental outcomes. However, within the literature that discusses resilience as traits or in my terms, *Embodied Identity*, protective factors are the qualities one possesses (whether inherent or learned) that allow one to self-identify as *resilient*. The protective factors in a sense are the same or conceptually similar, it is the purpose they serve related to resilience that creates a divergence.

The findings highlight one other interesting feature of the interviews. Participants' narratives of their natural disaster experiences appeared to overwhelmingly include a positive perspective of *survival* as opposed to one centering themselves as *victims*. As evidenced throughout the findings section, even when participants pointed out the deficits in infrastructure or governance, they did not seem to do so in an effort to place blame or to complain, but rather they did so to further demonstrate their resilience despite certain challenges. Further, the interviewees clearly expressed an acceptance of their chronic exposure to natural disasters and the extreme impacts that come along with these events, exemplified in the *Social Recovery* sub-theme, framing it positively. The belief that "in order to live [in the US Virgin Islands], you have to be resilient because you have to know that every so many years, you're going to get hurricanes or some of a natural disaster... because it's part of life here" (Interview #12, Female) appears to also have allowed the residents to put aside negative emotions in order to embody and engage in resilience to produce positive outcomes. From within communications and human/social psychology research fields, this ability to "background negative feelings and focus on the positive" is described as "... a conscious decision to acknowledge that one has the legitimate right to feel anger or loss in certain ways but that these feelings are

counterproductive to more important goals” (Buzzanell, 2010, p. 9). Participants described how, in the aftermath, people clearly had negative emotional responses to the destruction, but they did not allow these feelings to get in the way of helping the community recover to some level of normal. There is a wealth of literature within the social sciences that has connected positive emotions to post-disaster resilience (Hochschild, 1983; Buzzanell & Turner, 2003; Colak, Bonanno, Keltner, Noll, Putnam, Trickett, 2003; Fredrickson et al., 2003; Newsom & Myers-Bowman, 2017; Sameroff & Rosenblum, 2006).

To offer an explanation of this phenomenon, it is relevant to note that these participants were being asked to talk about past events, the most recent of which occurred almost 3 years prior. Teigen and Jensen (2011) in their own study on the subjective perceptions of persons who had experienced a natural disaster point out that positive reflections or narratives could be explained by the following:

there may...be a temporal dimension at work. People who are now in safety, who are looking back on an episode of chaos and terror, can hardly avoid contrasting their present condition, and the circumstances leading to their rescue, with the near-death situation during the disaster. All little steps leading to their eventual recovery are then turned into so many pieces of good luck. (p. 54)

To some extent, it is possible to say that the participants that were interviewed were able to construct positive narratives given that the traumatic experiences did occur sometime back and given that, in their eyes, the territory had regained some acceptable level of normalcy since the occurrences. This is in line with what Teigen and Jensen (2011)

describe, however, something that further complicates the analogy is the fact that this study was happening in the midst of the COVID-19 crisis. Given that all the participants were educators and the education system was extremely and directly impacted as a result of the pandemic, the occurrence of COVID-19 provided yet another opportunity for people to reasonably adopt a victim role, yet they did not. There are various examples of this within the *Social Recovery* (see Interview #2) and *Community Personifications* (see Interview #7 and #12) sections of the findings. Additionally, while these interviews were being conducted, the territory was beginning to prepare for the anticipated “above-normal” (NOAA, 2020) 2020 hurricane season. Thus, people had plenty to complain about if they wanted to but even under those circumstances the narratives were generally positive in their description of their situation. Therefore, there does seem to be additional elements that contribute to residents rejecting the victim role other than the passage of time. This is a community of people who have admittedly overcome historical traumas such as slavery, past economic and natural disaster events (e.g. 1867 Tsunami), and thus, it is possible to attribute these positive positioning to the historic explanations given by some of the participants.

Conclusion

The aim of this study was to explore the personal and professional lived-natural disaster experiences of small island developing state residents who are educators with the intent to better understand the role educators have in building resilience within their community. This study utilized an approach that provided a look into social conditions that add to or enhance the social resilience of a community which has generally been underexplored by focusing on environmental events such as hurricanes (Klinenberg, 1999). In order to do so, residents of the US Virgin Islands who are employed locally as educators *and* who had experienced one or more natural disasters while living in the territory were interviewed. Participants were asked 1) to share their subjective definitions and personal perceptions of resilience related to their community and 2) to speak to the role they felt educators like themselves play (past, present, and/or future) in building community resilience in the US Virgin Islands. Residents' responses to the interview questions and subsequent data analysis revealed the following emergent two themes and four sub-themes: (1) *Social Process* with sub-themes *Social Recovery* and *Community Alliances*, and (2) *Embodied Identity* with sub-theme *Community Personifications*.

Qualitative inductive thematic analysis of the data has shown that residents of the USVI define resilience using much of the same or similar terminology commonly used by academics to describe social or community resilience in the context of disasters (e.g., bounce back, cope, recover) (see Aldrich, 2012; Folke, 2006; Keck & Sakdapolrak, 2013). Additionally, the manner in which residents described how resilience is exemplified within the community – as both a collective process and an individual inherent or learned trait – also reflects the general research consensus of the dichotomous

ways in which resilience can be conceptualized (Jacelon, 1997). However, the resilience described by these residents is not considered optional. There is no choice but to bounce back; no choice but to recover and improve, hence why it was implied by participants that US Virgin Islanders possess an absolute form of resilience which allows them handle to anything that comes their way (natural disaster or otherwise) *and* makes it possible for them to effectively engage in the process of resilience.

Further, through this inquiry, participants also determined that there is a plethora of ways in which residents in their role as educators further contribute to the resilience of their community, pre- and post-disaster. Participants' discussion of the most influential resources for disaster preparation and recover were perfectly encapsulated by the academic discussion of protective factors (Rutter, 1985; Carbonell et al., 2002). More specifically, it was shown that personal and environmental protective factors play different roles in process and trait resilience (Jacelon, 1997), although ultimately they serve the same purpose which is to produce positive outcomes. Extant literature indicates that for adolescents, social bonds they form with family members and teachers as a result of proximity are one type of protective factor that is extremely impactful when dealing with adversity (Christiansen & Christiansen, 1997; Garmezy, 1993). Thus, educators' contributions are twofold: (1) the social bonds educators often share with students *act as a protective factor for* students in the community and (2) the classroom-based education (using textbook and experiential learning) students engage in provides them with the skills, tools, and connections they need to *engage with their protective factors*. Unexpectedly, participants also elucidated the central role that educational infrastructure and peripheral organizations have in moving the community resilience process forward.

Thus, this study meaningfully adds to the body of literature within the disaster research discipline in a few clear ways. First, with the disaster research discipline, the focus tends to fall on ecological and social-ecological resilience despite recent demonstration of the importance of the social resilience and the social aspects of resilience in the disaster experience of vulnerable populations (Jabeen, Johnson, & Allen, 2010; Atallah, 2016). Within small island developing states, economic and environmental aspects of social resilience have been greatly explored leading to valuable insights, but to restate, research has shown that in the absence of other forms of capital, social capital (i.e., social relationships, networks, norms) plays a crucial role in reducing the impacts of disasters on vulnerable communities. This study adds to the literature which centers on social aspects of resilience and further demonstrates how important it is to maintain social and cultural capital.

Second, the protective factors exemplified in the findings and expanded upon in the discussion section appear to be relevant to the discourse on the role of capitals for effective social resilience (Mignone & O'Neil, 2005); exploring the ways in which the protective factors common to one community differ to that of other communities facing similar stressors could be used to explain why responses to disasters manifest differently in other small island developing states communities. One such explanation could be related to the regionality of certain weather events which result in disaster. US Virgin Islanders are aware that there is a hurricane season and therefore, under normal circumstances have months to anticipate the hurricane events. Even during hurricane season, once a storm has formed, residents generally have a few days to a week to prepare before the storm makes landfall. Communities of other regions that suffer more

commonly from tsunamis, earthquakes, or other less predictable/trackable events and as a result, are not afforded the same amount of time to anticipate as with hurricanes, may have different internalized attitudes towards such events.

Finally, moving towards the broader contributions of this study, there is a clear need to race towards developing and operationalizing methods aimed at enhancing SIDS resilience being that small island developing states (SIDS) represent the most climate-vulnerable populations on earth. The top-down methods most commonly utilized to define and measure resilience (especially in disaster-prone communities), while necessary, do not capture community-based perceptions of resilience which, as Beauchamp et al (2019, p 313) describes, are important because, “social context and cultural settings are part of individuals’ conceptualizations of resilience...” and therefore, “...using perceptions of resilience which have been grounded in participatory assessments...can help ground projects in local circumstances and avoid top-down decision-making, which runs counter to the contextualized nature of resilience”. While this study may be most contextually relevant to SIDS of the Caribbean region, the methods used to explore the concept of resilience from a community-based perspective is one that can be replicated in the other SIDS, as such regions continue to develop their responses to climate change and other disaster-related issues.

In terms of future research, it is recommended that there be added focus on the following three areas: (1) longitudinal research on social impacts of disasters, (2) methodological expansion to include qualitative and participatory-based research, and (3) increased focus on youth populations. This study demonstrates the continued need for researchers and practitioners to acknowledge top-down assessments of resilience are not

always reflective of community-based perceptions of resilience – in terms of indicators, risk perceptions, and other relevant factors. Further, at the community level for resilience, there are socio-cultural aspects tied to community identity that may influence how people view themselves. Therefore, it is necessary for researchers and practitioners to not only think in terms of the top-down applications of resilience for the benefit of a community but to also seek out the subjective perceptions of the community in order to identify what benefits the communities actually desire. Thus, avoiding a fall into the trap of designing solutions that communities have no interest in applying or understanding of why these actions are necessary. Lastly, this study has also demonstrated that there should be a shift away from language that implies climate-vulnerable populations lack resilience, towards terminology that acknowledges the many ways these communities historically have demonstrated resilience – even if it is only resilience by their standards.

It is also recommended that a longitudinal study of the impacts of natural disasters on youth populations in the US Virgin Islands be conducted given how the recent natural disasters (and COVID-19) have impacted how schools operated for an extended period of time. Additionally, it is recommended that this study be duplicated and include a random sample of individuals from within the community who work in jobs that provide valuable services in the immediate aftermath of a disaster. Examples include law enforcement offices, healthcare workers and non-profit volunteers. This study should also be used to further gather data on educators' experiences related to natural disasters and youth populations in the territory. More than a few participants, in the course of the interviews, expressed that they felt they had no voice and no say in the planning and implementation of education in the territory. The occurrence of COVID-19 seemed to exacerbate these

feelings. As a result, it might also be impactful to create a classroom-based study using participatory methods that allows educators in the territory to implement some of their disaster education ideas into the curriculum in order to measure the impacts while also empowering this group.

In conclusion, participants in this study expressed a desire to see the results of their participation presented back to the general community in addition to relevant agencies and organizations within the community connected to education and disaster management. Knowledge-mobility is central to use-inspired research thus the goal will be to publish aspects of this research, but also to continue to share this knowledge with the community in hopes that it helps them in any planning and recovery efforts.

References

- Adger, W. N. (2000). Social and ecological resilience: Are they related? *Progress in Human Geography*, 24(3), 347–364.
<https://doi.org/10.1191/030913200701540465>
- Adler, P. S., & Kwon, S. (2002). Social capital: Prospects for a new concept. *The Academy of Management Review*, 27(1), 17–40. JSTOR.
<https://doi.org/10.2307/4134367>
- Agrawal, A. (1995). Dismantling the divide between indigenous and scientific knowledge. *Development and Change*, 26(3), 413–439.
<https://doi.org/10.1111/j.1467-7660.1995.tb00560.x>
- Aldrich, D. P. (2012). *Building resilience: Social capital in post-disaster recovery*. University of Chicago Press.
- Aldrich, D. P., & Meyer, M. A. (2015). Social capital and community resilience. *American Behavioral Scientist*, 59(2), 254–269.
<https://doi.org/10.1177/0002764214550299>
- Atallah, D. G. (2016). Toward a decolonial turn in resilience thinking in disasters: Example of the Mapuche from southern Chile on the frontlines and faultlines. *International Journal of Disaster Risk Reduction*, 19, 92–100.
<https://doi.org/10.1016/j.ijdrr.2016.08.027>
- Baldwin, C., & King, R. (2018). *Social sustainability, climate resilience and community-based urban development: What about the people?* Routledge.
- Barnhardt, R. (2005). Indigenous knowledge systems and Alaska native ways of knowing. *Anthropology & Education Quarterly*, 36(1), 8–23.
<https://doi.org/10.1525/aeq.2005.36.1.008>
- Beardslee, W. R. (1989). The role of self-understanding in resilient individuals: The development of a perspective. *American Journal of Orthopsychiatry*, 59(2), 266–278. <http://dx.doi.org.ezproxy1.lib.asu.edu/10.1111/j.1939-0025.1989.tb01659.x>
- Beauchamp, E., Abdella, J., Fisher, S., McPeak, J., Patnaik, H., Koulibaly, P., Cissé, D., Touré, M., Bocoum, A., Ndao, M., Deme, Y., & Gueye, B. (2019). Resilience from the ground up: How are local resilience perceptions and global frameworks aligned? *Disasters*, 43(S3), S295–S317. <https://doi.org/10.1111/disa.12342>
- Below, R., & Wallemacq, P. (2018). *Natural Disasters 2017*. Institute Health and Society, Université Catholique de Louvain.
https://cred.be/sites/default/files/adrs_2017.pdf

- Bergstrand, K., Mayer, B., Brumback, B., & Zhang, Y. (2015). Assessing the relationship between social vulnerability and community resilience to hazards. *Social Indicators Research*, 122(2), 391–409. <https://doi.org/10.1007/s11205-014-0698-3>
- Berkes, F., & Ross, H. (2013). Community resilience: Toward an integrated approach. *Society & Natural Resources*, 26(1), 5–20. <https://doi.org/10.1080/08941920.2012.736605>
- Bhamra, R., Dani, S., & Burnard, K. (2011). Resilience: The concept, a literature review and future directions. *International Journal of Production Research*, 49(18), 5375–5393. <https://doi.org/10.1080/00207543.2011.563826>
- Bonanno, G. A. (2004). Loss, trauma, and human resilience: Have we underestimated the human capacity to thrive after extremely aversive events? *American Psychologist*, 59(1), 20–28. <http://dx.doi.org.ezproxy1.lib.asu.edu/10.1037/0003-066X.59.1.20>
- Bourdieu, P., & Wacquant, L. J. D. (1992). *An invitation to reflexive sociology*. University of Chicago Press.
- Bousquet, F., Botta, A., Alinovi, L., Barreteau, O., Bossio, D., Brown, K., Caron, P., Cury, P., d’Errico, M., DeClerck, F., Dessard, H., Kautsky, E. E., Fabricius, C., Folke, C., Fortmann, L., Hubert, B., Magda, D., Mathevet, R., Norgaard, R. B., ... Staver, C. (2016). Resilience and development: Mobilizing for transformation. *Ecology and Society*, 21(3). JSTOR. <http://www.jstor.org/stable/26269986>
- Braun, V., & Clarke, V. (2012). Thematic analysis. In *APA handbook of research methods in psychology, Vol 2: Research designs: Quantitative, qualitative, neuropsychological, and biological* (pp. 57–71). American Psychological Association. <https://doi.org/10.1037/13620-004>
- Brodsky, A. E. (1999). “Making it”: The components and process of resilience among urban, African-American, single mothers. *American Journal of Orthopsychiatry*, 69(2), 148–160. <http://dx.doi.org.ezproxy1.lib.asu.edu/10.1037/h0080417>
- Bryan, J., Farmer-Hinton, R., Rawls, A., & Woods, C. (2017). Social capital and college-going culture in high schools: The effects of college expectations and college talk on students’ postsecondary attendance. *Professional School Counseling*, 21, 95–107. <https://doi.org/10.5330/1096-2409-21.1.95>
- Buckner, J. C., Mezzacappa, E., & Beardslee, W. R. (2003). Characteristics of resilient youths living in poverty: The role of self-regulatory processes. *Development and Psychopathology*, 15(1), 139–162. <https://doi.org/10.1017/S0954579403000087>

- Buzzanell, P. M. (2010). Resilience: Talking, resisting, and imagining new normalcies into being. *Journal of Communication*, 60(1), 1–14. <https://doi.org/10.1111/j.1460-2466.2009.01469.x>
- Buzzanell, P. M., & Turner, L. H. (2003). Emotion work revealed by job loss discourse: Backgrounding-foregrounding of feelings, construction of normalcy, and (re)instituting of traditional masculinities. *Journal of Applied Communication Research*, 31(1), 27–57. <https://doi.org/10.1080/00909880305375>
- Callaghan, E. G., & Colton, J. (2008). Building sustainable & resilient communities: A balancing of community capital. *Environment, Development and Sustainability*, 10(6), 931–942. <https://doi.org/10.1007/s10668-007-9093-4>
- Carbonell, D. M., Reinherz, H. Z., Giaconia, R. M., Stashwick, C. K., Paradis, A. D., & Beardslee, W. R. (2002). Adolescent protective factors promoting resilience in young adults at risk for depression. *Child and Adolescent Social Work Journal*, 19(5), 393–412. <https://doi.org/10.1023/A:1020274531345>
- Christiansen, J., & Christiansen, J. L. (1997). Using protective factors to enhance resilience and school success for at-risk students. *Intervention in School & Clinic*, 33(2), 86. <https://doi.org/10.1177/105345129703300203>
- Cinner, J., Fuentes, M. M. P. B., & Randriamahazo, H. (2009). Exploring social resilience in Madagascar’s marine protected areas. *Ecology and Society*, 14(1). JSTOR. <https://www.jstor.org/stable/26268039>
- Climate change. (2020). *United Nations Sustainable Development*. <https://www.un.org/sustainabledevelopment/climate-change/>
- Colak, D., Bonanno, G. A., Keltner, D., Noll, J. G., Putnam, F. W., & Trickett, P. (2003). Positive emotion and long-term adjustment among young adult survivors of childhood sexual abuse. *Manuscript in Preparation*.
- Coleman, J. S. (1988). Social capital in the creation of human capital. *American Journal of Sociology*, 94, S95–S120. <https://doi.org/10.1086/228943>
- Constantine, N. A., Benard, B., & Diaz, M. (1999). *Measuring protective factors and resilience traits in youth: The healthy kids resilience assessment*.
- Coto, D. (2019, August 28). *Dorian hits U.S. Virgin Islands as category 1 hurricane*. PBS NewsHour. <https://www.pbs.org/newshour/nation/puerto-rico-fears-widespread-flooding-from-tropical-storm-dorian>
- Cullen, R., & Hassall, G. (2017). *Achieving sustainable e-government in Pacific Island states*. Springer.

- Cutter, S. L. (2016). Resilience to what? Resilience for whom? *The Geographical Journal*, 182(2), 110–113. <https://doi.org/10.1111/geoj.12174>
- Dasgupta, P., & Serageldin, I. (1999). *Social capital: A multifaceted perspective*. World Bank Publications. <http://ebookcentral.proquest.com/lib/asulib-ebooks/detail.action?docID=3050478>
- Denham, A. R. (2008). Rethinking historical trauma: Narratives of resilience. *Transcultural Psychiatry*, 45(3), 391–414. <https://doi.org/10.1177/1363461508094673>
- Dent, R. J., & Cameron, R. J. S. (2003). Developing resilience in children who are in public care: The educational psychology perspective. *Educational Psychology in Practice*, 19(1), 3–19. <https://doi.org/10.1080/0266736032000061170>
- Dobrovolny, M. (2014, June 23). *Small island developing states 'lack research support.'* SciDev.Net. <http://www.scidev.net/index.cfm?originalUrl=/global/r-d/news/small-island-developing-states-lack-research.html&>
- Dommen, E. (1980). Some distinguishing characteristics of island states. *World Development*, 8(12), 931–943.
- Egeland, B., Carlson, E., & Sroufe, L. A. (1993). Resilience as process. *Development and Psychopathology*, 5(4), 517–528. <https://doi.org/10.1017/S0954579400006131>
- FEMA. (2018a). *USVI hurricane recovery and resilience task force report 2018* (p. 273). https://first.bloomberglp.com/documents/257521_USVI_Hurricane+Recovery+Taskforce+Report_DIGITAL.pdf
- FEMA. (2018b, September 20). *U.S. Virgin Islands one-year milestones*. <https://www.fema.gov/news-release/2018/09/20/us-virgin-islands-one-year-milestones>
- Finnis, K. K., Johnston, D. M., Ronan, K. R., & White, J. D. (2010). Hazard perceptions and preparedness of Taranaki youth. *Disaster Prevention and Management: An International Journal*, 19(2), 175–184. <https://doi.org/10.1108/09653561011037986>
- Folke, C. (2006). Resilience: The emergence of a perspective for social–ecological systems analyses. *Global Environmental Change*, 16(3), 253–267. <https://doi.org/10.1016/j.gloenvcha.2006.04.002>
- Franklin, S., & Downing, T. (2004). *Resilience and vulnerability*. Stockholm Environment Institute; JSTOR. <http://www.jstor.org/stable/resrep00448>

- Fraser, M. W., Galinsky, M. J., & Richman, J. M. (1999). Risk, protection, and resilience: Toward a conceptual framework for social work practice. *Social Work Research*, 23(3), 131–143. <https://doi.org/10.1093/swr/23.3.131>
- Freitas, A. L., & Downey, G. (1998). Resilience: A dynamic perspective. *International Journal of Behavioral Development*, 22(2), 263–285. <https://doi.org/10.1080/016502598384379>
- Garmezy, N. (1993a). Children in poverty: Resilience despite risk. *Psychiatry*, 56(1), 127–136. <https://doi.org/10.1080/00332747.1993.11024627>
- Garmezy, N. (1993b). Children in Poverty: Resilience Despite Risk. *Psychiatry*, 56(1), 127–136. <https://doi.org/10.1080/00332747.1993.11024627>
- Great Britain. Department for Business, I., & Skills (BIS). (2013). *The benefits of higher education participation for individuals and society: Key findings and reports: 'the quadrants.'*
- Grootaert, C. (1998). *Social capital: The missing link? 1*, 34.
- Gunderson, L. H. (2000). Ecological resilience—in theory and application. *Annual Review of Ecology and Systematics*, 31, 425–439. JSTOR.
- Gunderson, L. H. (2001). *Panarchy: Understanding transformations in human and natural systems*. Island Press.
- Healy, T., & Cote, S. (2001). *The well-being of nations: The role of human and social capital*. Organisation for Economic Cooperation and Development, 2 rue Andre Pascal, F-75775 Paris Cedex 16, France (\$25); Tel: +33 1-45-24-82-00; Web site: <http://www>.
- Holling, C. S. (1973). Resilience and stability of ecological systems. *Annual Review of Ecology and Systematics*, 4(1), 1–23. <https://doi.org/10.1146/annurev.es.04.110173.000245>
- Inkpen, A. C., & Tsang, E. W. K. (2005). Social capital, networks, and knowledge transfer. *The Academy of Management Review*, 30(1), 146–165. JSTOR. <https://doi.org/10.2307/20159100>
- Jabeen, H., Johnson, C., & Allen, A. (2010). Built-in resilience: Learning from grassroots coping strategies for climate variability. *Environment and Urbanization*, 22(2), 415–431. <https://doi.org/10.1177/0956247810379937>
- Jacelon, C. S. (1997). The trait and process of resilience. *Journal of Advanced Nursing*, 25(1), 123–129. <https://doi.org/10.1046/j.1365-2648.1997.1997025123.x>

- Jones, L., & d'Errico, M. (2019). Whose resilience matters? Like-for-like comparison of objective and subjective evaluations of resilience. *World Development*, *124*, 104632. <https://doi.org/10.1016/j.worlddev.2019.104632>
- Keck, M., & Sakdapolrak, P. (2013). What is social resilience? Lessons learned and ways forward. *Erdkunde*, *67*(1), 5–19. JSTOR.
- Kerr, S. E. (2018). Social capital as a determinant of resilience: Implications for adaptation policy. In Z. Zommers & K. Alverson (Eds.), *Resilience* (pp. 267–275). Elsevier. <https://doi.org/10.1016/B978-0-12-811891-7.00022-0>
- Klinenberg, E. (1999). Denaturalizing disaster: A social autopsy of the 1995 Chicago heat wave. *Theory and Society*, *28*(2), 239–295. <https://doi.org/10.1023/A:1006995507723>
- Lapadat, J. C. (2010). Thematic analysis. In A. Mills, G. Durepos, & E. Wiebe (Eds.), *Encyclopedia of Case Study Research* (pp. 926–927). SAGE Publications, Inc. <https://doi.org/10.4135/9781412957397>
- Lauer, M., Albert, S., Aswani, S., Halpern, B. S., Campanella, L., & La Rose, D. (2013). Globalization, Pacific Islands, and the paradox of resilience. *Global Environmental Change*, *23*(1), 40–50. <https://doi.org/10.1016/j.gloenvcha.2012.10.011>
- Lewis, J. (1990). Small states conference on sea level rise. *Environmentalist*, *10*(2), 141–143. <https://doi.org/10.1007/BF02244391>
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. SAGE.
- Lindemann, E. (1944). Symptomatology and management of acute grief. *The American Journal of Psychiatry*, *101*(2), 141–148.
- Loury, G. (1992). The economics of discrimination: Getting to the core of the problem. *Harvard Journal for African American Public Policy*, *1*(1), 91–110.
- Luthar, S. S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: A critical evaluation and guidelines for future work. *Child Development*, *71*(3), 543–562. <https://doi.org/10.1111/1467-8624.00164>
- Luthar, S. S., & Zigler, E. (1991). Vulnerability and competence: A review of research on resilience in childhood. *American Journal of Orthopsychiatry*, *61*(1), 6–22. <http://dx.doi.org.ezproxy1.lib.asu.edu/10.1037/h0079218>
- MacGillivray, B. H. (2018). Beyond social capital: The norms, belief systems, and agency embedded in social networks shape resilience to climatic and geophysical hazards. *Environmental Science & Policy*, *89*, 116–125. <https://doi.org/10.1016/j.envsci.2018.07.014>

- Maclean, K., Cuthill, M., & Ross, H. (2014). Six attributes of social resilience. *Journal of Environmental Planning and Management*, 57(1), 144–156.
<https://doi.org/10.1080/09640568.2013.763774>
- Magis, K. (2010). Community resilience: An indicator of social sustainability. *Society & Natural Resources*, 23(5), 401–416.
<https://doi.org/10.1080/08941920903305674>
- Maguire, B., & Hagan, P. (2007). Disasters and communities: Understanding social resilience. *Australian Journal of Emergency Management, The*, 22(2), 16.
- Marshall, N. A., & Marshall, P. A. (2007). Conceptualizing and operationalizing social resilience within commercial fisheries in Northern Australia. *Ecology and Society*, 12(1). JSTOR. <https://www.jstor.org/stable/26267830>
- Martin-Breen, P., & Anderies, J. M. (2011). *Resilience: A literature review*.
<https://opendocs.ids.ac.uk/opendocs/handle/123456789/3692>
- Masten, A. S., & Coatsworth, D. (1995). *Competence, resilience, and psychopathology*. New York: John Wiley & sons, Inc.
- Masten, A. S., & Obradović, J. (2006). Competence and resilience in development. *Annals of the New York Academy of Sciences*, 1094(1), 13–27.
<https://doi.org/10.1196/annals.1376.003>
- Masterson, J. H., Peacock, W. G., Van Zandt, S. S., Grover, H., Schwarz, L. F., & Cooper Jr., J. T. (2014). *Planning for community resilience: A handbook for reducing vulnerability to disasters*. Island Press/Center for Resource Economics.
<https://doi.org/10.5822/978-1-61091-586-1>
- Mazzocchi, F. (2006). Western science and traditional knowledge: Despite their variations, different forms of knowledge can learn from each other. *EMBO Reports*, 7(5), 463–466. <https://doi.org/10.1038/sj.embor.7400693>
- McAdoo, B. G., Dengler, L., Prasetya, G., & Titov, V. (2019). Smong: How an oral history saved thousands on Indonesia’s Simeulue Island during the December 2004 and March 2005 tsunamis. *Earthquake Spectra*.
<https://doi.org/10.1193/1.2204966>
- McElroy, J. L. (2006). Small island tourist economies across the life cycle. *Asia Pacific Viewpoint*, 47(1), 61–77.
- McMillen, H. L., Ticktin, T., Friedlander, A., Jupiter, S. D., Thaman, R., Campbell, J., Veitayaki, J., Giambelluca, T., Nihmei, S., Rupeni, E., Apis-Overhoff, L., Aalbersberg, W., & Orcherton, D. F. (2014). Small islands, valuable insights: Systems of customary resource use and resilience to climate change in the

- Pacific. *Ecology and Society*, 19(4). JSTOR.
<http://www.jstor.org/stable/26269694>
- Meadows, S. O., Miller, L. L., & Robson, S. (2015). Understanding resilience. In *Airman and Family Resilience* (pp. 9–22). RAND Corporation; JSTOR.
<http://www.jstor.org/stable/10.7249/j.ctt19rmdbt.10>
- Mercer, J., Dominey-Howes, D., Kelman, I., & Lloyd, K. (2007). The Potential for combining indigenous and western knowledge in reducing vulnerability to environmental hazards in small island developing states. *Environmental Hazards*, 7(4), 245–256. <https://doi.org/10.1016/j.envhaz.2006.11.001>
- Mercer, J., Kelman, I., Suchet-Pearson, S., & Lloyd, K. (2009). Integrating indigenous and scientific knowledge bases for disaster risk reduction in Papua New Guinea. *Geografiska Annaler. Series B, Human Geography*, 91(2), 157–183. JSTOR.
- Mignone, J., & O’Neil, J. (2005). Social capital and youth suicide risk factors in First Nations communities. *Canadian Journal of Public Health / Revue Canadienne de Sante’e Publique*, 96, S51–S54. JSTOR.
- Mileti, D. S. (Colorado S. U., & Sorensen, J. H. (Oak R. N. L. (1990). *Communication of emergency public warnings: A social science perspective and state-of-the-art assessment* (ORNL-6609). Oak Ridge National Lab., TN (USA).
<https://doi.org/10.2172/6137387>
- Muttarak, R., & Lutz, W. (2014). Is education a key to reducing vulnerability to natural disasters and hence unavoidable climate change? *Ecology and Society*, 19(1).
<https://doi.org/10.5751/ES-06476-190142>
- Nahapiet, J., & Ghoshal, S. (1998). Social capital, intellectual capital, and the organizational advantage. *The Academy of Management Review*, 23(2), 242–266. JSTOR. <https://doi.org/10.2307/259373>
- Neimeyer, R. A., & Stewart, A. E. (1996). Trauma, healing, and the narrative employment of loss. *Families in Society*, 77(6), 360–375. <https://doi.org/10.1606/1044-3894.933>
- Nicoll, W. G. (2014). Developing transformative schools: A resilience-focused paradigm for education. *International Journal of Emotional Education*, 6(1), 47–65.
- NOAA. (2020). *Busy Atlantic hurricane season predicted for 2020 | National Oceanic and Atmospheric Administration*. <https://www.noaa.gov/media-release/busy-atlantic-hurricane-season-predicted-for-2020>
- Nolen-Hoeksema, S., & Morrow, J. (1991). A prospective study of depression and posttraumatic stress symptoms after a natural disaster: The 1989 Loma Prieta

- earthquake. *Journal of Personality and Social Psychology*, 61(1), 115–121.
<http://dx.doi.org.ezproxy1.lib.asu.edu/10.1037/0022-3514.61.1.115>
- Pelling, M., & Uitto, J. I. (2001). Small island developing states: Natural disaster vulnerability and global change. *Global Environmental Change Part B: Environmental Hazards*, 3(2), 49–62. [https://doi.org/10.1016/S1464-2867\(01\)00018-3](https://doi.org/10.1016/S1464-2867(01)00018-3)
- Petzold, J., & Magnan, A. K. (2019). Climate change: Thinking small islands beyond Small Island Developing States (SIDS). *Climatic Change*, 152(1), 145–165. <https://doi.org/10.1007/s10584-018-2363-3>
- Phillippi, J., & Lauderdale, J. (2018). A guide to field notes for qualitative research: Context and conversation. *Qualitative Health Research*, 28(3), 381–388. <https://doi.org/10.1177/1049732317697102>
- Pielke, R. A., Jose, R., Landsea, C., Fernández, M. L., & Klein, R. (2003). Hurricane vulnerability in Latin America and The Caribbean: Normalized damage and loss potentials. *Natural Hazards Review*, 4(3), 101–114. [https://doi.org/10.1061/\(ASCE\)1527-6988\(2003\)4:3\(101\)](https://doi.org/10.1061/(ASCE)1527-6988(2003)4:3(101))
- Pisello, A. L., Rosso, F., Castaldo, V. L., Piselli, C., Fabiani, C., & Cotana, F. (2017). The role of building occupants' education in their resilience to climate-change related events. *Energy and Buildings*, 154, 217–231. <https://doi.org/10.1016/j.enbuild.2017.08.024>
- Portes, A. (1998). Social capital: Its origins and applications in modern sociology. *Annual Review of Sociology*, 24, 1–24. JSTOR.
- Portes, A. (2000). The two meanings of social capital. *Sociological Forum*, 15(1), 1–12. JSTOR.
- Portes, A., & Landolt, P. (2000). Social capital: Promise and pitfalls of its role in development. *Journal of Latin American Studies*, 32(2), 529–547. <https://doi.org/10.1017/S0022216X00005836>
- Putnam, R. (2000). *Bowling alone: The collapse and revival of american community*. Simon and Schuster.
- Ronan, K. R., & Johnston, D. M. (2003). Hazards education for youth: A quasi-experimental investigation. *Risk Analysis*, 23(5), 1009–1020. <https://doi.org/10.1111/1539-6924.00377>
- Ross, H., & Berkes, F. (2014). Research approaches for understanding, enhancing, and monitoring community resilience. *Society & Natural Resources*, 27(8), 787–804. <https://doi.org/10.1080/08941920.2014.905668>

- Rubin, H. J., & Rubin, I. S. (2011). *Qualitative interviewing: The art of hearing data* (3rd ed.). SAGE.
- Rutter, M. (1985). Resilience in the face of adversity: Protective factors and resistance to psychiatric disorder. *The British Journal of Psychiatry*, *147*(6), 598–611.
- Rutter, M. (1993). Resilience: Some conceptual considerations. *Journal of Adolescent Health*, *14*(8), 626–631. [https://doi.org/10.1016/1054-139X\(93\)90196-V](https://doi.org/10.1016/1054-139X(93)90196-V)
- Rutter, M. (2007). Resilience, competence, and coping. *Child Abuse & Neglect*, *31*(3), 205–209. <https://doi.org/10.1016/j.chiabu.2007.02.001>
- Schwartz, S. B. (2016). *Sea of storms: A history of hurricanes in the greater Caribbean from Columbus to Katrina*. Princeton University Press.
- Simberloff, D. S. (1974). Equilibrium theory of island biogeography and ecology. *Annual Review of Ecology and Systematics*, *5*(1), 161–182.
- Simberloff, D. S., & Abele, L. G. (1976). Island biogeography theory and conservation practice. *Science*, *191*(4224), 285–286. <https://doi.org/10.1126/science.191.4224.285>
- Sinclair, M. (2001). Education in emergencies. *Learning for a Future: Refugee Education in Developing Countries*, 1–84.
- Smit, B., & Wandel, J. (2006). Adaptation, adaptive capacity and vulnerability. *Global Environmental Change*, *16*(3), 282–292. <https://doi.org/10.1016/j.gloenvcha.2006.03.008>
- Smokowski, P. R., Reynolds, A. J., & Bezruczko, N. (1999). Resilience and protective factors in adolescence: An autobiographical perspective from disadvantaged youth. *Journal of School Psychology*, *37*(4), 425–448. [https://doi.org/10.1016/S0022-4405\(99\)00028-X](https://doi.org/10.1016/S0022-4405(99)00028-X)
- Southwick, S. M., Bonanno, G. A., Masten, A. S., Panter-Brick, C., & Yehuda, R. (2014). Resilience definitions, theory, and challenges: Interdisciplinary perspectives. *European Journal of Psychotraumatology*, *5*. <https://doi.org/10.3402/ejpt.v5.25338>
- Stearns, H. T., & Macdonald, G. A. (1946). *Geology and ground-water resources of the island of Hawaii* (Bulletin 9; p. 303). United States Department of the Interior.
- Teigen, K. H., & Jensen, T. K. (2011). Unlucky victims or lucky survivors? Spontaneous counterfactual thinking by families exposed to the tsunami disaster. *European Psychologist*, *16*(1), 48–57. <https://doi.org/10.1027/1016-9040/a000033>

- Turner, B. L., Kasperson, R. E., Matson, P. A., McCarthy, J. J., Corell, R. W., Christensen, L., Eckley, N., Kasperson, J. X., Luers, A., Martello, M. L., Polsky, C., Pulsipher, A., & Schiller, A. (2003). A framework for vulnerability analysis in sustainability science. *Proceedings of the National Academy of Sciences*, 100(14), 8074–8079. <https://doi.org/10.1073/pnas.1231335100>
- UN General Assembly. (2015). *Transforming our world: The 2030 agenda for sustainable development* (A/RES/70/1). UN General Assembly. https://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E
- UNDP. (2017, September 18). *Small island nations at the frontline of climate action*. United Nations Development Programme. <https://www.undp.org/content/undp/en/home/presscenter/pressreleases/2017/09/18/small-island-nations-at-the-frontline-of-climate-action.html>
- Ungar, M. (2011). Community resilience for youth and families: Facilitative physical and social capital in contexts of adversity. *Children and Youth Services Review*, 33(9), 1742–1748. <https://doi.org/10.1016/j.childyouth.2011.04.027>
- United Nations. (n.d.). *List of SIDS*. United Nations Sustainable Development Goals Knowledge Platform. Retrieved September 15, 2019, from <https://sustainabledevelopment.un.org/topics/sids/list>
- United Nations. (1992). Chapter 17. *Report of the United Nations Conference on Environment and Development*, 2. https://www.un.org/Depts/los/consultative_process/documents/A21-Ch17.htm
- UN-OHRLLS. (2017). *Small island developing states in numbers: Biodiversity & oceans*. http://unohrlls.org/custom-content/uploads/2017/09/SIDS_in_Numbers_062817_FINAL_LRes.pdf
- UN-OHRLLS. (2019a). *About SIDS*. UN-OHRLLS. <http://unohrlls.org/about-sids/>
- UN-OHRLLS. (2019b). *Country profiles*. UN-OHRLLS. <http://unohrlls.org/about-sids/country-profiles/>
- US Department of the Interior. (2015, June 11). *U.S. Virgin Islands*. Department of the Interior. <https://www.doi.gov/oia/islands/virgin-islands>
- U.S. Dept of Education. (2018, April 17). *After hurricanes, USVI residents choose hope*. Medium. <https://medium.com/after-irma-and-mar%C3%ADa-island-education-weather-the/after-after-hurricanes-usvi-residents-choose-hope-20e1cb9a75ff>
- Wachtendorf, T., Brown, B., & Nickle, M. C. (2008). Big bird, disaster masters, and high school students taking charge: The social capacities of children in disaster education. *Children, Youth and Environments*, 18(1), 456–469. JSTOR.

- Walker, B., Holling, C. S., Carpenter, S., & Kinzig, A. (2004). Resilience, adaptability and transformability in social–ecological systems. *Ecology and Society*, 9(2). <https://doi.org/10.5751/ES-00650-090205>
- Waters, E., & Sroufe, L. A. (1983). Social competence as a developmental construct. *Developmental Review*, 3(1), 79–97. [https://doi.org/10.1016/0273-2297\(83\)90010-2](https://doi.org/10.1016/0273-2297(83)90010-2)
- Werner, E. E. (2000). *Handbook of early childhood intervention* (J. P. Shonkoff & S. J. Meisels, Eds.). Cambridge University Press.
- Westley, F., Carpenter, S. R., Brock, W. A., Holling, C. S., & Gunderson, L. H. (2002). *Why systems of people and nature are not just social and ecological systems*. <https://vtechworks.lib.vt.edu/handle/10919/65569>
- Wong, P. P. (2011). Small island developing states. *WIREs Climate Change*, 2(1), 1–6. <https://doi.org/10.1002/wcc.84>
- Woolcock, M. (1998). Social capital and economic development: Toward a theoretical synthesis and policy framework. *Theory and Society*, 27(2), 151–208. JSTOR.
- Yates, T. M., Egeland, B., & Sroufe, L. A. (2003). Rethinking resilience: A developmental process perspective. In *Resilience and vulnerability: Adaptation in the context of childhood adversities* (pp. 243–266).
- Zion, D., Gillam, L., & Loff, B. (2000). The declaration of Helsinki, CIOMS and the ethics of research on vulnerable populations. *Nature Medicine*, 6(6), 615–617. <https://doi.org/10.1038/76174>

APPENDIX A
IRB APPROVAL



EXEMPTION GRANTED

[Christine Buzinde](#)
[WATTS: Community Resources and Development, School of](#)
602/496-2429
Christine.Buzinde@asu.edu

Dear [Christine Buzinde](#):

On 2/27/2020 the ASU IRB reviewed the following protocol:

Type of Review:	Initial Study
Title:	An Exploration of Educators' Roles for Building Social Resilience to Natural Disasters in Small Islands States
Investigator:	Christine Buzinde
IRB ID:	STUDY00011608
Funding:	None
Grant Title:	None
Grant ID:	None
Documents Reviewed:	<ul style="list-style-type: none"> • Federal Demonstration Partnership, Category: IRB Protocol; • Informed Consent, Category: Consent Form; • Interview Protocol.pdf, Category: Measures (Survey questions/Interview questions /interview guides/focus group questions); • IRB Protocol, Category: IRB Protocol; • Recruitment Email, Category: Recruitment Materials;

The IRB determined that the protocol is considered exempt pursuant to Federal Regulations 45CFR46 on 2/27/2020.

In conducting this protocol you are required to follow the requirements listed in the INVESTIGATOR MANUAL (HRP-103).

Sincerely,

IRB Administrator

cc:

Jendayi Edmeade

APPENDIX B
INTERVIEW PROTOCOL

Introduction

Thank you for meeting with me today and for your willingness to participate in this research...

Research Purpose Recap

As I previously shared, I am conducting interviews with junior and high school administrators/educators in the USVI to explore... Do you have any clarifying questions or want any further information about this study?

Confidentiality

I would like to remind you that this will be audio-recorded. Everything you share during this interview is confidential. You have the right to refuse to answer any questions presented to you or completely withdraw from this interview process at any point during the interview, for any reason. Do you have any questions before we begin?

Warm-up Questions

- **Please describe any direct experiences you have had with hurricanes.**
 - Please describe how you obtained the knowledge needed to prepare for the hurricanes (e.g. reliance on past experience, local knowledges, government recommendations, advice from neighbors).
 - Please describe the role (if any) of personal relationships or networks in helping or hindering your recovery.
- **When you hear the term “community resilience” or hear someone say, “the USVI is resilient”, what does this mean to you?**

[After response to previous warm-up question, provide academic definition of resilience]

Core Questions

- **Based on your interpretation of the term, how resilient (or not) do you think the USVI is?**
- **What role (if any) do you think education/educators will play in building disaster resilience throughout the territory?** What role does local inter-generational knowledge related to resilience have in formal educational contexts?
- **How aware are your students about local knowledge related to natural hazards?**
- **Do you believe your students generally understand the importance of community and social networks?**
- **Thinking about your students, their experiences with natural hazards/disasters, and their (in)formal education related to resilience, how do you think your students are dealing with the impacts of the hurricanes?**

Cool Down Questions

Is there anything that I did not touch on that you feel would help to better inform this study? Any additional information you would like to share with me?

Final Thanks

Thank you for agreeing to sit down with me. If you have any additional thoughts, questions, or concerns please feel free to reach out to me via email. I will follow-up with you via email provide you with the link to the post-interview survey which will allow you to select your gift card preference and asks a few demographics questions. Thanks again!

[End Interview]

APPENDIX C

POST-INTERVIEW DEMOGRAPHIC SURVEY

Please provide an email address below that you would like your gift card to be sent to.

- Email Address: _____

Please indicate the date of our interview (M/D/Y): _____

Please select what kind of \$15 gift card you would like to receive:

- Office Max
- Amazon
- Other: _____

Please select the option that **currently** applies to you:

- Administrator
- Teacher
- Counselor
- Other: _____

Please provide the name of the school where you **currently** are employed:

Please indicate how long you have been employed in your **current** position:

- Less than 1 year
- 1-5 years
- 6-10 years
- 11+ years

Did you attend **4 years** of high school in the US Virgin Islands?

- Yes
- No

How long have you been a permanent resident of the US Virgin Islands?

What gender do you identify as?

- Male
- Female
- Other
- Prefer not to answer

What is your age?

- 21-30
- 31-40
- 41-50
- 51-60
- 60+
- Prefer not to answer

APPENDIX D

INFORMED CONSENT FORM (SOCIAL BEHAVIOR)

An Exploration of Educators' Role for Building Social Resilience to Natural Disasters in Small Island Developing States

INTRODUCTION

The purposes of this form are to provide you (as a prospective research study participant) information that may affect your decision as to whether or not to participate in this research and to record the consent of those who agree to be involved in the study.

RESEARCHERS

Jendayi Edmeade, Graduate Student, School of Community Resources & Development at Arizona State University and Dr. Christine Buzinde, Associate Professor, School of Community Resources & Development at Arizona State University have invited your participation in a research study.

STUDY PURPOSE

The proposed study explores the personal and professional lived-natural disaster experiences of SIDS residents who are educators in order to understand their role in building social resilience within their community. The findings from this study may have implications for the local education system, disaster planning and recovery, and local community capitals.

DESCRIPTION OF RESEARCH STUDY

Interviews will be undertaken with 30 participants from 25 middle, junior high, and high schools located in the St. Thomas-St. John and St. Croix school districts. If you decide to participate, then you will take part in a one-on-one, in-person interview with a photo-elicitation component. You will be encouraged to bring an item (e.g. photos) you feel represents positive post-disaster aspects of your community. You will be asked to share what item you brought and why you brought it, before being asked to describe your disaster experiences. The interview will take approximately 30-60 minutes. The interviews will take place at a pre-selected location agreed upon by you and the researcher.

I would like to audio record this interview. The interview will not be recorded without your permission. Please let me know if you do not want the interview to be recorded. You may also change your mind after the interview starts, just let me know.

RISKS

Participants will be asked to share and reflect on their natural disaster experiences. It is acknowledged that recollection of the disaster may be emotionally triggering for some. We have provided you with the interview questions expected to elicit emotional responses which should help to inform your willingness to participate. During the interview process, if you prefer not to answer any question posed to you, please let the interviewer know.

CONFIDENTIALITY

Confidentiality will be ensured during interviews. All information obtained in the interview is strictly confidential. The results of this research study may be used in reports, presentations, and publications, but the researchers will not identify you. With your expressed permission, the items you bring for the photo-elicitation component may be used in reports, presentations, and publications, but researchers will not identify you as the source. In order to maintain confidentiality of your records, pseudonyms will be used at all times. You will be given the opportunity to create your own pseudonym, if you desire. Only Jendayi Edmeade and Dr. Buzinde will have access to the data. The data will be destroyed once the data have been analyzed and published.

WITHDRAWAL PRIVILEGE

Participation in this study is completely voluntary. It is ok for you to say no. Even if you say yes now, you are free to say no later, and withdraw from the study at any time. Please note that if you choose to withdraw from the study any data that we have obtained from you will be destroyed.

VOLUNTARY CONSENT

Any questions you have concerning the research study or your participation in the study, before or after your consent, will be answered by Jendayi Edmeade at jedmeade@asu.edu or (340) 677-1801 or by Dr. Christine Buzinde at Christine.buzinde@asu.edu or (602) 496 -2429.

If you have questions about your rights as a subject/participant in this research, or if you feel you have been placed at risk; you can contact the Chair of the Human Subjects Institutional Review Board, through the ASU Office of Research Integrity and Assurance, at 480-965 6788.

Please let me know as soon as possible if you wish to participate in this study.

This form explains the nature, demands, benefits and any risk of the project. By signing this form you agree knowingly to assume any risk involved. Remember, your participation is voluntary. You may choose not to participate or to withdraw your consent and discontinue participation at any time without penalty or loss of benefit. In signing this consent form, you are not waiving any legal claims, rights or remedies. A copy of this consent form will be provided to you, in person, prior to the start of our interview.

Your signature below indicates that you **consent to participate in the above study.**

Subject's Signature

Printed Name

Date

Your signature below indicates that you **consent to have your photo-elicitation materials be utilized for reports, presentations, and publications.**

Subject's Signature

Printed Name

Date

APPENDIX E
RECRUITMENT EMAIL

Greetings,

My name is Jendayi Edmeade. I am a graduate student in the School of Community Resources & Development at Arizona State University under the direction of Dr. Christine Buzinde. I am conducting a research study to explore the personal and professional lived-natural disaster experiences of small island developing state residents who are educators.

I am inviting your participation, which will involve a one-on-one, Zoom or phone interview lasting approximately 30-60 minutes. During the interview I will ask questions about your disaster experiences, specifically in relation to your professional role as an educator within a post-disaster community. Please be aware that recollecting disaster experiences may be triggering for some; as such, I have provided below the questions that participants will be asked during the interview, which specifically ask you to share your disaster experiences.

The interview will be audio-recorded, with your consent, and later transcribed verbatim. However, in order to maintain confidentiality of your records, pseudonyms will be used at all times and no identifiable information will be utilized. **As a thank you for your participation, you will receive a \$15 gift card to a place of your choice or Amazon or Office Max.**

Your participation in this study is voluntary. If you are interested in participating, or if you have any questions concerning the research study, please contact me at jedmeade@asu.edu or (340) 677-1801 or Dr. Christine Buzinde at christine.buzinde@asu.edu or (602) 496 - 2429. If you are interested, please respond as soon as possible in order to give us ample time to schedule a date and time for the interview. Thank you for your consideration!

*This study is **not** affiliated with the VI Department of Education.

INTERVIEW QUESTION RELATED TO DISASTER EXPERIENCE(S)

- Please describe how you obtained the knowledge needed to prepare for the hurricanes (e.g. reliance on past experience, local knowledges, government recommendations, advice from neighbors).
- Please describe what post-disaster recovery was like for you and your community. What changes have happened over time (technological, social, environmental infrastructural impacts)?
- Please describe the role (if any) of personal relationships or networks in helping or hindering your recovery.